

Cornell University

Academic Information

1979–80

Cornell University Announcements (USPS 132-860)

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Introduction

This book is intended to provide matriculants and faculty advisers with information on academic requirements and related academic information. Its focus is primarily undergraduate. For information on course offerings, see *Cornell University: Description of Courses*.

The information contained in this *Announcement* concerns the Ithaca campus only and does not pertain to the Cornell University Medical College or the Graduate School of Medical Sciences, which are located in New York City. For further information concerning these units see the Announcements of the Medical College and the Graduate School of Medical Sciences.

The rules and regulations stated in this *Announcement* are for information only and in no way constitute a contract between the student and Cornell University. The University reserves the right to change any regulation or requirement at any time.

1979

JANUARY							JULY						
SUN	MON	TUES	WED	THU	FRI	SAT	SUN	MON	TUES	WED	THU	FRI	SAT
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1980

JANUARY							JULY						
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MARCH							SEPTEMBER						
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APRIL							OCTOBER						
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MAY							NOVEMBER						
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JUNE							DECEMBER						
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Cornell University Calendar 1979-80

Fall Semester

Sunday, August 26	New-student orientation begins Residence halls open
Monday and Tuesday, August 27 and 28	Placement examinations and new-student advising
Wednesday, August 29	Registration, new students
Thursday and Friday, August 30, 31	Registration, continuing and rejoining students
Monday, September 3	Instruction begins, 8:00 a.m. Add/drop/change period begins
Monday, September 17	Physical education classes begin
Friday, September 21	Last day of add/drop/change period Last day for late registration
Friday, Saturday, and Sunday, October 5, 6, 7	New student Parents' Weekend
Friday and Saturday, November 2 and 3	Homecoming Weekend
Saturday, October 20	Fall recess: instruction suspended, 1:10 p.m.
Wednesday, October 24	Instruction resumes, 8:00 a.m.
Monday, October 29 - Friday, November 9	Course enrollment for spring semester
Wednesday, November 21	Thanksgiving recess: instruction suspended, 1:10 p.m.
Monday, November 26	Instruction resumes, 8:00 a.m.
Tuesday, December 11	Instruction ends, 5:00 p.m.
Wednesday, December 12 - Saturday, December 15	Reading period
Sunday, December 16	Final examinations begin
Sunday, December 23	Final examinations end Residence halls close

The dates shown in the academic calendar are subject to change at any time by official action of Cornell University.

In this calendar, the University has scheduled classes on religious holidays. It is the intent of the University that students missing classes due to the observance of religious holidays be given ample opportunity to make up work.

Spring Semester

Sunday, January 13	Residence halls open
Wednesday, January 16	Registration, new and rejoining students
Thursday and Friday, January 17 and 18	Registration, continuing students
Monday, January 21	Instruction begins, 8:00 a.m. Add/drop/change period begins
Monday, February 4	Physical education classes begin
Friday, February 8	Last day of add/drop/change period Last day for late registration
Saturday, March 15	Spring recess: instruction suspended, 1:10 p.m.
Monday, March 24	Instruction resumes, 8:00 a.m.
Monday, April 7 - Friday, April 18	Course enrollment for fall semester
Saturday, May 3	Instruction ends, 1:10 p.m.
Sunday, May 4 - Sunday, May 11	Reading period
Monday, May 12	Final examinations begin
Tuesday, May 20,	Final examinations end
Monday, May 26	Commencement Day

Summer Session Calendar 1980

Three-Week Session	June 2 - June 24
Eight-Week Session	June 16 - August 8
Six-Week Session	June 25 - August 8

Graduate Tests

The dates of graduate tests administered by the Educational Testing Service (including the Graduate Record Examination, the Graduate Management Admission Test, the Law School Admission Test, and the Medical College Admission Test) are available in the late summer. Students who want further information about tests, dates, and test application deadlines should contact the Career Center, 14 East Avenue (telephone 256-5226).

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The University

History

Cornell University is unique among institutions of higher education in its vast complexity and variety. In order to understand its unique character, it is necessary to know something of its history.

Two extraordinary men, Ezra Cornell and Andrew Dickson White, were both members of the New York State Senate when the Morrill Act, the "Land Grant Act," was adopted by the Congress. Cornell was a farm-bred mechanic who lived in Ithaca. His career of poverty-stricken enterprises had been abruptly transformed by great wealth when the scattered telegraph lines he had built were consolidated to form Western Union. He wanted to provide training in the practical arts and sciences for sons and daughters of the laboring classes. White was a gentleman and a cosmopolitan, a scholar who was impatient to offer vigorous and progressive intellectual education as an alternative to the fusty drills in the classics so typical of the academies of his day.

At first the backgrounds and visions of Cornell and White seemed hopelessly incompatible, and they opposed each other as the legislature sought to find the best use for New York's share of the federal land scrip provided by the Morrill Act. Happily, however, both became captivated at the same time by the idea of uniting in a single university their separate ambitions, and from that moment they worked together to create "... an institution where any person can find instruction in any study."

Cornell pledged his farm for a campus and half a million dollars for endowment if the legislature would commit the proceeds of the land grant to the new university. Thus in April, 1865, the University was incorporated by an act of the legislature as an endowed institution with both public and private funds. The first classroom building on the Cornell campus, barely completed in time for the opening of classes in 1868, was named after Senator Justin Smith Morrill, author of the land-grant bill in Congress.

In time the State of New York assumed further responsibility for the University. Most of the state's commitment is to support four of the present colleges, known on campus as the statutory colleges: the College of Agriculture and Life Sciences, the College of Human Ecology, the School of Industrial and Labor Relations, and the College of Veterinary Medicine. The remaining colleges are known as the endowed colleges and include the College of Arts and Sciences, the College of Architecture, Art, and Planning, the College of Engineering, the School of Hotel Administration; the Law School; the Graduate School of Business and Public Administration, and the Graduate School. The Cornell University Medical College and the Graduate School of Medical Sciences are also endowed units, but are located in New York City.

Affiliated with the statutory colleges are units that provide research facilities and public services required of land-grant institutions. These are the agricultural experiment stations located in Geneva, New York, and in Ithaca; the Cooperative Extension Service, associated primarily with the Colleges of Agriculture and Life Sciences and of Human Ecology, administered from Ithaca with

county agents and offices throughout the state; and the Extension Division of the School of Industrial and Labor Relations, which has offices in the major metropolitan areas of the state.

Cornell thus has many of the characteristics of the older endowed colleges of the East, but also shares some of the commitments and programs of the great state universities to the west. As Cornell's third president Jacob Gould Schurman said, "The classification of American universities should be three-fold and not two-fold, for in the United States we have endowed universities, state universities, and Cornell University...."

Several of the distinguished faculty and benefactors in the early history of Cornell are commemorated in campus buildings: White, Sage, Goldwin Smith, Sibley, Barnes, Bailey, Comstock, and others.

The first woman student was admitted in 1870, two years after classes began, and the first woman graduated from Cornell in 1873 at a time when it was still rare for a woman to attend college. From its earliest days foreign students have been a vital element in Cornell's population.

Today Cornell continues the tradition of maintaining a distinguished faculty and many internationally recognized leaders in their fields are to be found among its more than 1,800 members. The library system is one of the ten largest academic libraries in the country. Two of Cornell's internationally known research facilities are the National Astronomy and Ionosphere Center in Puerto Rico, which has the world's largest radio-radar telescope, and the world's largest electron synchrotron on the Ithaca campus.

In spite of its complexity, however, Cornell remains a university of relatively modest size. The undergraduate student body in the fall of 1977 was approximately 11,785, distributed among the seven undergraduate colleges and schools. There were more than 4,500 graduate students for a total on the Ithaca campus of approximately 16,340.

Location

Ithaca is one hour by plane from New York City and five hours by car or bus. Other major metropolitan areas, such as Chicago, Pittsburgh, and Washington, are accessible by direct commercial flights.

Ithaca is a city of about 28,000 in the Finger Lakes Region of New York State, a beautiful area of rolling hills, deep valleys, scenic gorges, and clear lakes. On East Hill overlooking Cayuga Lake, the campus covers 740 acres with more than 400 University buildings. Deep gorges with many waterfalls bound the campus on the north and south. Nearby Sapsucker Woods, a 180-acre bird sanctuary maintained by the University, contains miles of nature trails.

Open countryside, state parks, and year-round recreational facilities are only minutes away and provide excellent opportunities for sailing, swimming, skiing, ice skating, hiking, camping, and other outdoor activities to supplement the recreational facilities on campus.

Admission to Cornell

Citizens of the United States or Canada, persons holding permanent resident visas or refugee visas from the United States, and landed immigrants of Canada seeking admission to an undergraduate school or college at Cornell should request application forms from the Office of Admissions, 410 Thurston Avenue, Ithaca, New York 14850.

Correspondence regarding entrance to the Graduate School, the Graduate School of Business and Public Administration, the Law School, the Medical College, the Graduate School of Medical Sciences, the School of Nursing, and the College of Veterinary Medicine should be addressed to the individual units.

Foreign Students. Any foreign national who does not hold a permanent resident visa or refugee visa from the United States is defined by Cornell University as a foreign student. All foreign students (except Canadian citizens and landed immigrants of Canada) are prescreened to determine whether they meet the entrance requirements for the Cornell school or college in which they have an interest. Applicants themselves may not determine whether they are foreign students since this is determined by their visa status. See the section "Foreign Students" for further information concerning admissions, financial aid, and services for foreign students.

General Admission Policy

It is the policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age, or handicap. The University is committed to the maintenance of affirmative action programs which will assure the continuation of such equality of opportunity.

A brochure describing services for the handicapped student may be obtained by writing to the Office of the Dean of Students, Cornell University, 103 Barnes Hall, Ithaca, New York 14853. Other questions or requests for special assistance may also be directed to that office.

Each of the undergraduate schools and colleges is limited in the number of students it can accommodate. The number of qualified applicants for freshman and transfer admission exceeds the number that can be admitted. Candidates may submit only one application for a given semester and be considered for admission by only one undergraduate division at a time. Applicants compete only with those seeking admission to the same Cornell school or college. Each undergraduate unit has its own selection committee, admitting those who have best demonstrated they deserve acceptance. Those schools and colleges that focus on professional programs emphasize the selection of students who, having met all other qualifications, show the best evidence of being suited for the field of work to which the course of study is directed.

Choosing the undergraduate unit to which to apply is most important and should be given careful thought.

Requirements for admission and graduation vary

considerably from one division to another. These should be considered in relation to a student's abilities, interests, achievements, and academic and vocational goals. Secondary school counselors should be consulted and Cornell admissions officers are always ready to assist prospective applicants.

More detailed information about admission requirements may be found in the *Announcement of General Information*, which may be obtained by contacting the Office of Admissions, Cornell University, 410 Thurston Avenue, Ithaca, New York 14850 (telephone 607/256-5241) or by writing Cornell University Announcements, Research Park, Ithaca, New York 14850.

While students at Cornell do transfer from one undergraduate school or college to another after enrolling, such internal transfer cannot be guaranteed. Counseling is available to those who find themselves in an inappropriate course of study and every effort is made to assist students in transferring within the University so they can satisfactorily complete an undergraduate program. Those who are unable to transfer directly from one Cornell school or college or another, but who appear to have a reasonable chance for academic success in another area of study, may be admitted to the Division of Unclassified Students for one or two semesters. Students in the division enroll in the same courses they would normally take if they were registered in the new academic unit while attempting to meet the transfer requirements of that school or college.

Academic Competence

As an educational institution, Cornell University is devoted primarily to the intellectual development of its students. Those selected for admission must have demonstrated clearly the intellectual capacity to carry on the academic work and to profit from the instruction. Intellectual preparedness for study at Cornell is judged mainly by the candidate's secondary school record (and college record, if a transfer student), the recommendations of school authorities, and standardized college admissions tests.

Extracurricular Activities

To supplement the basic requirement of demonstrated intellectual capability, evidence of the candidate's ability to make effective use of nonacademic capabilities is an important consideration in admissions decisions. This factor is judged by the character and quality of the student's participation in school and community extracurricular activities and by the use made of vacation periods. Work experience or other activity related to the candidate's vocational or professional objective is also important.

Character, Personality, and Motivation

The intangible but important factors that form good character and an effective personality all receive full consideration by the selection committee. Evidence of a sound motivation for attaining higher education in general, and for pursuing a specific field of education is also desirable. Capacity for leadership and concern for others receive due weight. Those factors are usually judged by the report from the applicant's secondary school and by interview reports, when available. Some University divisions require interviews, whereas in others the need for an interview is left up to the applicant. Interviews are also

conducted by alumni secondary school committees operating in many sections of the country; such contacts are often helpful in providing the candidate with additional information about Cornell.

Admissions Conferences, Personal Interviews, and Tours of the University

Prospective students and their families are encouraged to visit the campus and to arrange for discussions with members of the faculty or admissions staff and in other ways to become familiar with the University. The University Office of Admissions and the undergraduate schools and colleges offer a variety of opportunities for group conferences and individual interviews. All *individual* interviews are by appointment. Interested students are encouraged to write or telephone suggesting a date and time, and alternates if possible, at least three weeks in advance of the date requested. Each undergraduate division arranges its own individual interviews and group meetings and students should communicate with the appointment secretary at the address or phone number listed on the following pages for each school or college.

University Group Admissions Conferences

These group sessions are designed especially for those who have limited knowledge about the University or who are unsure how their interests might best be accommodated by a Cornell undergraduate program. Conferences, which are open to students, parents, and other interested persons, include information on the admissions process, financial aid, educational programs, and campus facilities, and also provide opportunity for questions and answers. Sessions normally last from forty-five minutes to one hour. They are held at the University Office of Admissions, 410 Thurston Avenue, on Monday and Friday at 9:30 a.m. and 11:00 a.m.; Tuesday, Wednesday, and Thursday at 9:30 a.m., and Saturday at 9:00 a.m. Those wishing to participate are encouraged to make appointments by writing the Office of Admissions or by telephoning 607/256-5241 a few days in advance of a visit, but appointments are not required. Parking is available at the office and arrangements for on-campus parking will be made for those wishing to visit other facilities.

Required Individual Interviews

The college and schools listed below require personal individual interviews as a part of the application process.

The College of Architecture, Art, and Planning

Candidates for admission or prospective applicants are encouraged to visit the campus in the fall of the year before anticipated matriculation for the interview, which is strongly recommended. An on-campus interview with a faculty member in the Department of Architecture or the Department of Art is most desirable. In instances where applicants are unable to come to Ithaca, it may be possible to schedule an interview (through the alumni secondary school committee) with a graduate of the program in the prospective student's area. Portfolios of work, if available, are requested by both the Department of Architecture and the Department of Art. These should be brought to the interview either in original form, copies, or slides. Examples of class assignments or independent work are acceptable. In instances where neither an on-campus nor off-campus

interview is possible, candidates should contact the admissions secretary regarding submission of a written statement in lieu of the interview. Interview arrangements may be made by contacting the Admissions Secretary, Sibley Hall, or calling 607/256-4376 two weeks before the intended visit.

The School of Hotel Administration It is the responsibility of the prospective student to arrange for the required interview. On-campus interviews are strongly encouraged, but when a visit to the campus is impossible, arrangements can be made for interviews in other locations. Contacts with other representatives of the University do not substitute for the required individual interview arranged through the Admissions Office in the School of Hotel Administration. Appointments are made through the Admissions Secretary, Statler Hall; telephone 607/256-6376.

The School of Industrial and Labor Relations The school initiates correspondence directly with students about required interviews after they have applied for admission. Normally, alumni interviews or informational visits to the school do not substitute for the formal interview. Arrangements for informational visits, generally scheduled on Monday morning or Friday afternoons, may be made by writing the Admissions Office, 101 Ives Hall, or calling 607/256-2221.

Optional Individual Interviews and Group Sessions

The College of Agriculture and Life Sciences offers admissions conferences, either in small groups or individually, by prior appointment from May 1 to late December. Individual appointments for prospective freshmen and transfer applicants are available, as time allows, weekdays from 10 a.m. to 12 noon and 2 to 4 p.m. Group sessions are scheduled on Monday and Friday afternoons at 2 p.m. Transfer applicants are usually granted individual appointments to discuss their preparation for transfer. Appointments and conferences are not scheduled on Saturdays or University holidays. Address: 195 Roberts Hall; telephone: 607/256-2036.

The College of Arts and Sciences recommends that students visit the campus for a personal interview. Although not required for admission, an interview does provide the admissions representative with an opportunity to talk with the prospective student and to record any observations that may be useful to the Admissions Committee. Personal interviews for prospective freshmen are conducted on campus Monday through Friday from 9 a.m. to 4 p.m. June 1 through January 15; between September 1 and January 15, interviews are also conducted Saturday mornings from 9 a.m. to 12 noon. Due to the large number of requests, all appointments should be scheduled well ahead of time by writing the College of Arts and Sciences Admissions Office, 150 Rockefeller Hall; or by calling 607/256-4833. *Transfer applicants* may arrange for interviews until mid-April.

All prospective students and their families are invited to attend Arts and Sciences Panel Discussions. A member of the admissions staff, a student, and a faculty member lead these discussions, which focus on the curriculum, special programs and options, student life, and admissions and financial aid policies. These sessions are intended to be informative rather than evaluative. They are held on Monday and Friday at 2:30 p.m. and on Saturday at 10 a.m.

from June 1 to January 15. Although not required, appointments are recommended and may be arranged by contacting the College Admissions Office at the address above.

The College of Engineering highly recommends, but does not require, that prospective students visit the campus for a personal interview. Interview appointments are generally available from 9 a.m. to 12 noon and 1 to 4 p.m. on weekdays, and 9 to 11:30 a.m. on Saturdays according to the schedule below. Appointments for interviews are strongly recommended to assure the availability of an admissions staff member and are made by contacting the Admissions Secretary, 221 Carpenter Hall; telephone 607/256-5008.

<i>Dates</i>	<i>Interview Times</i>
Sept. 1–Feb. 1 and Apr. 15–June 1	Any weekday and Saturday mornings except official University holidays
Feb. 1–April 15	Monday and Friday and Saturday mornings, except official University holidays
June 1–Sept. 1	Weekdays only, except official University holidays

The College of Human Ecology offers small group conferences on Monday and Friday at 10:30 a.m. and 3 p.m. all year. From May 1 until February 1, individual conferences may be scheduled as time permits on Tuesday, Wednesday, and Thursday from 10 a.m. to 12 noon and 2 to 4 p.m. Prospective transfers may arrange appointments until April 1. A group conference is also available at 10 a.m. on one Saturday each month in the fall. Appointments for all conferences should be made at least one week in advance of the visit to campus by contacting the Admissions Secretary, N101 Martha Van Rensselaer Hall, or calling 607/256-5471.

Financial Information

Tuition, Fees, and Expenses

Tuition for Academic Year 1979–80

Endowed Divisions

<i>Undergraduate</i>	
Architecture, Art, and Planning	\$5,256
Arts and Sciences	5,256
Engineering	5,256
Hotel Administration	5,256
Unclassified	5,256

Graduate

Business and Public Administration	
First-year student	5,584
Second-year student	5,100
Law School	5,256
Graduate School: with special committee chairman from an endowed division	5,256

Statutory Divisions

Undergraduate

Agriculture and Life Sciences	
Resident*	\$2,216
Nonresident	3,668
Human Ecology	
Resident*	2,216
Nonresident	3,668
Industrial and Labor Relations	
Resident*	2,216
Nonresident	3,668

Graduate

Graduate School:	
with special committee chairman from Agriculture and Life Sciences, Human Ecology, or Industrial and Labor Relations	2,518
with major field of study in Veterinary Medicine	3,832
Veterinary Medicine	
Resident*	3,832
Nonresident enrolled prior to 7/1/76	4,762
Nonresident enrolled after 7/1/76	5,474

Summer Session

Per credit hour	\$100
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Extramural Division

Per credit hour	\$125
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Other Tuition and Fees

In absentia fees	
Graduate	\$200.00 per term
Undergraduate	15.00 per term
Excess hours tuition rate for students in statutory units taking extra endowed credits	125.66 per credit

The amount, time, and manner of payment of tuition, fees, or other charges may be changed at any time without notice.

Prepayment Plan Cornell offers an installment plan for payment of educational expenses through Academic Management Services, Inc. The cost of the service, including a "life benefit coverage," is \$30 per year. Information about this plan will be mailed to parents of Cornell students by Academic Management Services, 1110 Central Avenue, Pawtucket, Rhode Island 02861.

Fees and Expenses

Applicants to Cornell pay a nonrefundable \$25 application fee when submitting an application for admission.

*New York State residency status for tuition purposes is determined by the rules of the college in which the student is enrolled.

Accepted candidates who plan to enroll at Cornell are required to pay a one-time \$50 registration fee by a date specified on the registration coupons that accompany the letter of acceptance. The fee is not applied to tuition charges and is not refundable after the stated due date.

Room and Board

If a student plans to live in a University residence hall, there is a \$25 nonrefundable housing application fee. A \$100 security deposit is required at the time the first room contract is signed but at the conclusion of the final term spent in a residence hall, this deposit will be refunded, with interest, less any charge for room damages. If a student elects to participate in the optional bed linen rental and laundering plan, the cost will be \$26 or \$34 per academic year, depending on whether towels are included with the sheets and pillowcase. For another \$11 students may rent a blanket, pillow, and bedspread for the academic year.

Room and board on campus is estimated at \$2,250 for 1979–80 for single students. Room accommodations range in price from approximately \$765 to \$1,600 for 1979–80. For specific information on size, style, and rates of the various residence halls, contact the Housing Assignment Office, 223 Day Hall. The dining options range from \$295 per semester for five meals per week to \$530 per semester for twenty meals per week for 1979–80. A nonrefundable \$70 annual Co-op membership fee is charged if a student wishes to join one of the eight different Co-op dining plans. The only students who may receive rebates are those registered for only one semester. A student who takes an authorized leave of absence for the full spring semester or graduates at midyear receives a \$25 membership fee rebate upon request. A student who is new to Cornell second semester or was not registered first semester pays a \$45 nonrefundable fee. Cancellations of the Co-op dining program must be made at 233 Day Hall. Members will receive a prorated refund of the meal plan option for the period after cancellation.

The Co-op program does not provide meals during University recess periods, including fall semester break, Thanksgiving, Christmas, intersession, spring recess, and summer.

Budgets for married students and off-campus room and board vary considerably. One can pay more or less than charges for University housing and dining. For more detailed information concerning housing, contact the Department of Residence Life, 223 Day Hall; for dining information contact Cornell Dining, 233 Day Hall (256-5392).

Books and Supplies

The cost of books and supplies and personal expenses is more difficult to estimate since charges vary according to courses taken and styles of living. The cost of books and supplies is estimated at \$240 for 1979–80, although students in the College of Architecture, Art, and Planning and upperclass students in the Department of Design and Environmental Analysis are advised to budget an additional \$150. Students taking their required year of physical education courses will pay approximately \$10 for locker, uniform, and gym equipment rental.

Personal Expenses

Personal expenses, including clothing, laundry, cleaning, entertainment, and incidentals are estimated at \$574 for 1979–80. This figure does not include travel expenses and

the student should estimate travel costs for at least two roundtrip fares between home and Ithaca. Nonimmigrant foreign students should estimate an additional \$400 to \$500 because of insurance, living, and travel allowance during the semester break and holidays, plus an additional settling-in allowance for the purchase of warm clothing, extra linens, taxi and bus fares, and other initial purchases.

Medical Care

Medical care is included in the tuition and fees and entitles the full-time student enrolled at Cornell in Ithaca to unlimited visits to Gannett Medical Clinic, routine laboratory and x-ray examinations when prescribed by University physicians, counseling services at the clinic, and infirmary care at Sage Infirmary for up to fourteen days per semester, including emergency surgical care when referral is made through the Health Services. It does not cover the summer months unless the student is enrolled as a summer student.

A supplementary accident and health insurance plan provides additional coverage for medical expenses not ordinarily covered. It is mandatory for nonimmigrant foreign students to carry this insurance. This plan covers hospital care and charges for surgical procedures, care at Sage Infirmary in excess of fourteen days, consultations with a private physician or specialist, house calls, and other expenses connected with illness or injury, even when outside Ithaca. Students are covered by this plan for the entire twelve months. Only by filling out a waiver form, which may be obtained at Gannett Clinic, the Bursar's Office at 260 Day Hall, or at University registration, will students *not* be covered and *not* charged for this plan. The cost of this supplementary plan for 1979–80 is approximately \$81.

Additional services performed at Sage Infirmary or Gannett Medical Clinic, such as travel inoculations, optional x-ray and lab tests, eye refraction examinations for glasses, glasses, optional physical examinations, optional prenatal and obstetrical care will not be covered by this plan and students will be charged on an individual basis.

Course Fees

Certain courses including some physical education courses, labs, field trips, seminars, and studio courses have fees attached to them. In each case, the fee should be stated in the description accompanying the course in *Cornell University: Description of Courses*. Students taking instrumental music may be charged from \$97 to \$202 per term for individual instruction and practice rooms.

Optional Student Charges

<i>Bursar, Office of the</i>	
Cornellcard (charge card)	\$5.00
<i>Campus Store</i>	
Check cashing fee	.10 per check
<i>Career Center</i>	
Educational Placement Service	
Fee for sending one set of credentials	2.00
Fee for sending credentials overseas	4.00
<i>Job listings</i>	
Fee for one category	10.00 per year
Fee for each additional category	5.00 per year

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Premedical or predental placement	
Fee for sending 25 letters of recommendation	25.00 per year
Fee for sending 15 letters (for reapplicants)	15.00
Publications	
<i>Prelaw Guide</i>	.75
<i>Management Guide</i>	.75
Test Preparation Workshop	5.00
<i>Cornell Dining</i>	
Photography service for Co-op Dining card	.75
<i>Guidance and Testing Center, University</i>	
Doppelt Mathematical Reasoning Test fee	6.00
Language placement test fee	4.00
Miller Analogies Test fee	6.00
Series of vocational and academic guidance tests	30.00
<i>Health Services, Department of University</i>	
Physical examination	25.00
Tetanus toxoid inoculation	3.50
<i>Music, Department of</i>	
Band instrument rental	10.00
Lesson fees	\$90–180.00 per term
Rental of practice room	
Fee for six hours per week	\$7–45.00 per term
Fee for twelve hours per week	\$10–67.00 per term
<i>Physical Education and Athletics, Department of</i>	
Big Red 50 Card*	10.00
<i>Registrar, Office of the University</i>	
Diploma mailing fee	
United States and territories	2.00
Foreign	4.00
Transcript	
Fee for first copy	2.00
Fee for each additional copy on same order	1.00
<i>Residence Life, Department of</i>	
Blanket, pillow, and bedspread rental	11.00 per year
Linen rental and laundry	\$26–34.00
<i>Transportation Services, Office of</i>	
Bus Pass	13.00 per term
	25.00 per year
Purchased with A parking permit	5.00 per term
Parking permits	
Medical U, unrestricted	108.00 per year
Medical U, restricted	84.00 per year

*For regularly scheduled athletic events, students pay one-half the normal admission charge if they own a Big Red 50 Card.

K, VET	27.00 per academic year
A	20.25 per academic year
DORM, WD, GSH, SDK	40.50 per academic year
M (motorcycle, motor scooter, moped)	6.00 per academic year
M registration in addition to purchase of parking permit	no charge
MSH processing fee for first vehicle	5.00 per year
MSH fee for each additional vehicle	54.00 per year
<i>Unions, Department of University</i>	
Check cashing fee	.25 per check

Penalties

Penalties for lost items and failure to meet certain deadlines are listed below.

<i>Bursar, Office of the</i>	
Bad check fine	10.00
Cornellcard replacement	1.00
<i>Chemistry, Department of</i>	
Failure to check out chemistry desk	5.00
<i>Cornell Dining</i>	
Co-op card replacement (\$3 refund if card is found)	5.00
Temporary voucher (issued when student fails to bring card to cashier; refunded if card is lost and a new card is issued)	2.00
<i>Libraries</i>	
Recall fine	1.00 per day
Overdue fine	.10 per day
Reserve book overdue fine	
First hour	2.00
Each additional hour	1.00
<i>Registrar, Office of the University</i>	
ID card replacement	5.00
Late registration processing fee	10.00
Make-up examination fee	10.00
<i>Residence Life, Department of</i>	
Key replacement fee	1.00
Loan key for unlocking dormitory room	1.00
Lock replacement fee	10.00
Room change fee	15.00
<i>Transportation Services, Office of</i>	
Bus pass	
Fee for reissuing permanent pass	3.00
Fee for replacement of damaged pass	1.00
Fee for replacement of lost pass	5.00
Fee for temporary pass (valid for thirty days)	2.00
Parking fine	\$5–15.00 per violation

Unions, Department of University

Key replacement fee	5.00
Prelim file overdue fine	.50 per hour

Miscellaneous

Bad check (written to any department or office other than the Bursar)	4.00
College add/drop/change fee†	10.00
College late course enrollment fee†	10.00
Fee for failure to order cap and gown by the date specified	2.00

Refund Policies

Part of the amount personally paid for tuition will be refunded if the student obtains an official certificate of Leave of Absence or Withdrawal at the office of the dean or director of the academic division involved. Students who terminate their registration in the University during a regular term in this manner will be charged tuition from the registration day to the effective date of the certificate as follows: first week, 10 percent; second week, 20 percent; third week, 30 percent; fourth week, 40 percent; fifth week, 60 percent; sixth week, 80 percent; seventh week, 100 percent; except that no charge will be made if the effective date is within the first six days, including registration day.

The University makes available tuition insurance which provides refunds in event of leave of absence or withdrawal for medical or emotional reasons. Complete details regarding this coverage and applications accompany the August tuition bill.

The \$25 application fee for University residence halls is nonrefundable except when lack of space prevents the offer of a room assignment. The \$100 security deposit which guarantees a contract for a room in the residence halls is refundable, less damage charges, upon fulfillment of the contract.

Students participating in a prepaid dining plan who withdraw from the plan during a semester are eligible for a prorated refund based on the number of days the contract was in effect.

Repayment Policy In addition to refunds for which students may be eligible, those receiving financial aid from the University who withdraw during a term will have their aid reevaluated, possibly necessitating repayment of a portion of aid received. Repayment to aid accounts depends on the type of aid received, government regulations, and the period of time in attendance. A partial semester will generally count as one of the eight semesters of financial aid eligibility normally allowed a student.

Excess Hours Tuition

Students in the state-supported divisions who wish to take courses in the endowed divisions beyond the hours allowed free under the rules of those state-supported divisions, may be allowed to do so on payment for the additional hours of instruction at \$125.66 per credit hour. Financial aid recipients can request additional loan or job assistance to cover such additional tuition.

†Applies only to the Colleges of Architecture, Art, and Planning; Arts and Sciences; Engineering; and Human Ecology and the Graduate School.

Billing and Payment Information**Billing**

Bills cover charges for the term and list financial aid credit as of the date of preparation. The bill is prepared based on information processed before the beginning of the term. After registration, every effort will be made to correct mistakes.

It is possible that some charges will not be listed on the first bill and will appear on a subsequent monthly bill. *A student must be prepared to pay any charges appearing on a subsequent bill even though the student received a financial aid stipend before the billing charges.*

Please inform the Office of the Bursar of any change in billing address. *Address changes made at other offices will not change the billing address.*

Payments

An individual who has outstanding indebtedness to the University shall not be allowed to register or reregister in the University, receive a transcript of record, have academic credits certified, be granted a leave of absence, or have a degree conferred. If students' bills show a previous unpaid balance, they must arrange for payment by August 15 if they plan to register for the fall semester. University policy precludes the use of any 1979–80 financial aid for payment of past-due charges.

The bursar's office acts as a clearinghouse for student charges and credits which are placed directly on a student's bill by several departments and offices of the University. *Since the bursar's office does not have detailed records concerning many items that appear on a bill, students should contact the office involved if they have questions.*

All charges are payable in full within twenty days of the billing date. Any amounts remaining unpaid, in whole or in part, after the due date of the statement on which the charges first appeared will be assessed a finance charge at the rate of 1 percent per month (12 percent annual interest rate).

Checks and money orders should be made payable to *Cornell University*. Payment and the top portion of the bill may be mailed to the bursar's office. The student's cancelled check will serve as a receipt. If students desire a separate receipt, they should enclose the entire bill and a stamped, self-addressed envelope.

The University accepts checks only if they are drawn on banks located in the United States.

Students may pay in person by presenting the entire bill and payment to the cashier, 260 Day Hall, between 8 a.m. and 4:30 p.m., Monday through Friday. Payment by mail saves time and avoids waiting in line at the cashier's window.

For further information, contact the Office of the Bursar, 260 Day Hall, 256-2336.

Payment of Undergraduate Financial Aid

Undergraduate financial aid is administered by the Office of Financial Aid, 203 Day Hall, telephone 607/256-5145. Please direct all questions concerning undergraduate student aid to that office and see pages 13–21.

If charges on a bill are more than covered by University grants, scholarships, and loans, a stipend check will be issued in the student's name. These checks in the amount indicated on the bill may be picked up in 130 Day Hall after registration. Before picking up the stipend check, students should be absolutely certain all charges have been included on their bills and that any anticipated adjustments in Cornell aid have been shown on the bill. *No additional financial aid can be expected if students have spent their stipend check and are charged for an expense on a subsequent bill.*

Payment of Non-University Financial Aid

State loan proceeds will usually be disbursed by a check made payable to the student and Cornell University for the entire amount. The University bursar will credit this amount to the student's account when the check is submitted.

National Merit Scholarships are paid to the student in the form of a check drawn by the National Merit Corporation and sent to the Office of Financial Aid. If students wish to apply the amount of the award toward payment of their bill, they must personally pick up the check from the Office of Financial Aid, 203 Day Hall, and present it to the cashier, 260 Day Hall. The National Merit Corporation has requested that the University not process their checks through use of power-of-attorney.

Other scholarships from sources outside the University are credited to the bill if they have been received before the date the bill is prepared. Outside awards received after the initial billing date will be applied towards unpaid charges as they are received. *Any finance charges caused by late receipt of these awards will be the student's responsibility.* It is important, therefore, that the student arrange with any outside scholarship donors to have awards mailed to the University as promptly as possible.

If non-University scholarships have been received and all charges have been paid, a stipend check for the excess will be issued in the name of the student. These stipends may be picked up in 130 Day Hall.

New York State Awards

Please note that an application must be filed with the state each year for TAP awards. Credit will be given on bills for the amount of the TAP award when the student's name appears on a roster from the state indicating the students' eligibility and the amount of the award.

Medical Insurance

The medical insurance charge on students' bills is for insurance for hospitalization, surgical fees, and major medical coverage for the period of September 1, 1979 through August 30, 1980. The cost of this insurance is lower than the average cost of comparable coverage under other group accident and health insurance policies.

If, because students have other insurance to pay for these medical costs or for other reasons, they do not wish to take this insurance, they must submit a completed waiver form at the time of registration or to the bursar's office by September 26, 1979.

Tuition Insurance

To provide a more comprehensive refund program, Cornell makes available the Tuition Refund Plan. This plan provides refunds of tuition in the event of absence or withdrawal due to medical or emotional reasons. Contact the bursar's office for further information.

Prepayment Plan

Students whose parents are participating in the prepayment plan through Academic Management Services (see details under "Tuition") will be credited with one-half of the budgeted amount on the first statement of each semester. Should the required payments not be received on schedule, delinquent amounts will be charged to the student's bursar account and be subject to the 1 percent finance charge.

Income Tax Deduction

The per student cost of operating the University Health Services facilities is \$45 for the 1979 fall semester and \$45 for the 1980 spring semester. The Internal Revenue Service has advised that this amount is tax deductible for all who paid full tuition during these semesters.

Bad Check Policy

Important Notice: Any check not honored by the bank will be charged to a student's University account maintained by the university bursar, and a bad check fine will be assessed. These charges will be subject to a *finance charge* at the rate of 1 percent per month (12 percent annually).

If students are charged with two bad checks in any semester their check cashing privileges will be suspended for a semester. Students who issue four bad checks are subject to disciplinary action through the University judicial system, and may have their check cashing privileges permanently suspended.

Liability Insurance

Personal property belonging to administrative and support staff, members of the teaching staff, and students is not covered by the University insurance policies. The University is not liable for loss of or damage to any article of personal property anywhere on the premises due to insufficient or excessive heat, fire, water, or steam; the elements; or actions of third persons.

It is recommended that each student carry insurance protection against loss of or damage to personal property. This protection is sometimes provided by the policy carried by parents on their personal belongings. Students should consult their insurance agents for advice. Such insurance is also available through the University (telephone 256-3741).

Cornellcard

Cornellcard is a charge card issued by the bursar's office. Any registered full-time student may apply for a Cornellcard by filling out an agreement form and paying a \$5 nonrefundable fee. The replacement fee for a lost card is \$1. Cornellcard is accepted at the Statler cafeteria and dining room, all Cornell Dining facilities, the Cornell Campus Store, the Department of Physical Education, the Cornell University Concert Series, The Willard Straight Hall Box Office, North Campus Union, *The Cornellian*, and Cornell Clippers (hair styling). Itemized monthly statements are mailed to students. These bills must be paid within twenty days of the billing date shown on the statement or finance charges of 1 percent per month (an annual rate of 12 percent) will be added to them. All accounts must be paid in full before each registration period. Accounts with unpaid balances at the close of a semester (other than for the current monthly charges) may not be renewed and University registration will not be permitted, nor transcripts

issued or degrees conferred, until all arrears have been paid. The Cornellcard is nontransferable. Loss, theft, or possible unauthorized use should be reported immediately to the Cornellcard Office, 260 Day Hall, or call 607/256-6324 which has a 24-hour answering service. The maximum permissible account balance at any one time is \$300. Credit privileges may be suspended on any account in excess of the credit ceiling. Changes or corrections to the Cornellcard billing address must be sent to the Cornellcard office.

Programs of Financial Assistance 1979-80

Cornell University, in conjunction with the federal and state governments, offers a variety of scholarship, grant, fellowship, assistantship, loan, and employment opportunities to assist students in financing their education. The following information is provided to inform prospective and continuing undergraduate students of the various alternatives available. Foreign students should refer to information on pages 33-34.

University Undergraduate Aid Programs

Financial Aid Eligibility

To be eligible for Cornell undergraduate assistance, students must be enrolled full time in a degree program at Cornell; be in good standing and making satisfactory progress (defined as eligible to register in a college or school); demonstrate financial need as assessed by the Cornell University Office of Financial Aid; and not owe a refund from any federal grant or loan or be in default on any federal loans received to attend Cornell. Since requirements for good standing and satisfactory progress may vary among the individual schools and colleges at Cornell, students are referred to the registrars of their division for specific information on how to retain or be reinstated with satisfactory progress and in good standing. Students on leave of absence or undergraduate students registered in absentia are not eligible to receive Cornell assistance. Priority for undergraduate aid is reserved for new students to Cornell and continuing aid recipients who have met application deadlines. Continuing students applying for aid for the first time are considered on the basis of remaining funds. Cornell reserves the right to

revise a student's award package if government regulations, University policy, or sources of funding change during an academic year.

How Financial Need is Determined

Need is determined by subtracting a student's *total family contribution* from the *estimated cost of attendance*. If the Office of Financial Aid considers the student eligible for a scholarship, grant, or loan from a source other than Cornell, it subtracts the estimated amount of this assistance from the student's estimated financial need and attempts to meet fully the remaining need.

Total Family Contribution

In determining a student's eligibility for need-based assistance, Cornell estimates the appropriate contributions from parents of the student if not independent and from the student and student spouse. Students who meet the criteria for financial independence are considered exclusive of parents. For 1978-79, undergraduate students must have met the following criteria to be considered independent:

- 1) not be claimed as an exemption for federal income tax purposes by any person except spouse (if applicable) for the calendar year(s) in which aid is received and for the calendar year before the academic year for which aid is requested;
- 2) receive financial assistance of not more than \$600 from any parent(s) for the same period as above;
- 3) not live for more than two consecutive weeks in the house of a parent during this same period;
- 4) have spent at least twelve consecutive months in self-support while not engaged in full-time study or living with parents or guardians.

Criteria for 1979-80 were not known at the time of publication. Contact the Office of Financial Aid, 203 Day Hall (telephone 256-5145), for current information.

Parents' Contribution For dependent students, the Office of Financial Aid uses the information provided in the Financial Aid Form (FAF) and the 1977 U.S. federal income tax return (Canadian returns if appropriate) to determine a fair contribution from each family, taking into account the family's income and assets, the number of dependents, educational and medical expenses, taxes paid, certain types of debts, and other factors. This office uses the federally required and approved computation guidelines of the College Scholarship Service (CSS). Cornell reviews the CSS analysis and, if necessary, makes adjustments. Therefore, parental contributions as reported in the CSS Report to Filers option may differ from those cited by Cornell. Families may find the College Scholarship Service's publication *Meeting College Costs* helpful in determining how the parents' contribution is derived. This pamphlet is available from high school guidance counselors and the Office of Financial Aid at Cornell University.

Student's Contribution Students and spouses are expected to assist in meeting educational costs. The contribution includes earnings from summer and vacation employment, social security, veteran's and other benefits, and 35 percent of personal savings and assets. Summer employment earnings are usually estimated at \$700 for incoming freshmen and sophomores and \$800 for juniors

and seniors. The earnings of students participating in the COSEP (Committee on Special Educational Projects) program, HEOP (Higher Education Opportunity Program), and EOP (Educational Opportunity Program) and dependent low-income students with family incomes below \$10,000 are estimated to be \$100 less than these amounts. HEOP and EOP freshmen have no summer savings requirement in their first year; however, a contribution will be expected after the first year. Prospective COSEP freshmen accepting an invitation to participate in the summer program will have their summer savings expectation replaced by Cornell scholarship.

Students who can save summer earnings greater than the stated expectation are encouraged to decline all or part of the school-year loan in order to reduce long-term indebtedness.

Students who are unable to save all or part of the summer earnings expectation, or whose spouse is unable to meet the expected contribution, may possibly replace this amount with increased school-year job or loan assistance by submitting a written statement explaining why they were unable to contribute as expected. Students participating in the summer College Work Study Program are required to save at least 80 percent of their gross earnings if living at home or 60 percent if living away from home, regardless of the expected contribution indicated on the award letter. Students who receive a work-study award as financial aid to meet the costs of summer school attendance are normally exempt from the summer work-study savings requirement, but are expected to provide the student contribution from summer and vacation employment.

Financial Aid Package

Normally, a combination of gift (scholarship and grant) and self-help (job and loan) assistance is offered. The package for each student usually consists of a job and loan and, if need remains, a scholarship or grant. In 1979-80, the standard self-help is \$2,100; need above this amount is normally considered for scholarship.

Application Procedures

The academic year financial aid application for U.S. citizens, permanent residents, and Canadians consists primarily of the (1) Financial Aid Form (FAF) of the College Scholarship Service (CSS), (2) the Cornell Financial Aid Application, and (3) parents' and/or students' federal (U.S. or Canadian) and state income tax return. For 1979-80, the application deadline was March 1, 1979. Students who apply after that date may still receive consideration based on funds remaining available. Transfer applicants for the spring 1980 term must complete the aid application included in the admissions packet, and should obtain a 1979-80 Financial Aid Form (FAF) and send it directly to the Cornell Financial Aid Office by December 1, 1979.

For 1980-81, freshman applicants must complete the Cornell Freshman Student Aid Application included in the admissions packet and obtain a 1980-81 Financial Aid Form (FAF) from their guidance counselor and submit it to the College Scholarship Service (CSS) for processing by January 15, 1980. Early Decision Plan candidates should return all application forms to the Office of New Student Aid, Cornell University, 203 Day Hall, Ithaca, New York 14853 by November 15, 1979. Transfer students entering for fall term 1980 must submit the 1980-81 Financial Aid

Form (FAF) to the College Scholarship Service (CSS) by March 1, 1980. Further information and complete instructions are included in the admissions application packet.

Continuing students must submit all applications directly to the Cornell Office of Financial Aid by March 1 for priority consideration. Students may apply after the deadline but may be either denied assistance, given loan and job aid only, or receive lower than normal scholarship awards if funds are limited or exhausted.

Limited assistance is available for summer school study. A summer school application supplement must be submitted in addition to the following academic year's financial aid application. The application deadline is March 1 for the following summer. Scholarship consideration is given only to students who by attending summer school accelerate their academic programs by one semester and to students enrolled in the summer COSEP program. Accelerating students will receive scholarship aid in the same ratio as that to be received in the following academic year. Approved COSEP students will receive a scholarship to pay tuition and a loan to meet the remainder of their need.

Changes in the Award

The Office of Financial Aid anticipates that students will receive the aid package described in their award announcement. It may, however, be necessary for Cornell either to increase or decrease the award if changes occur in enrollment status, family financial status, the student's own financial resources or expenses, Cornell's own student aid resources, or the student's failure to abide by regulations or program requirements. Reductions in aid will be made first in the Cornell scholarship portion of the award. Increases will depend on the availability of funds.

Changes in enrollment status include changing undergraduate colleges at Cornell, taking fewer than 12 credits per semester, registering for study away from the University, and withdrawal before the end of the term. Students transferring within Cornell from statutory to endowed units will experience an increase in self-help in the first semester in the endowed unit equal to one-third of the standard annual self-help in effect that year. Reductions in credit hours below 12 credits in a term without approval from the student's college forwarded to the Office of Financial Aid will normally result in a cancellation of Cornell assistance for that term. Students should consult a financial aid counselor before making a change of this type.

Changes in family financial strength include significant discrepancies between the resources described in the Financial Aid Form (FAF) and those reported in the federal income tax return and unanticipated family financial reverses lasting longer than ten weeks. Students should consult a financial aid counselor if a change of this nature occurs.

Changes in student resources include receipt of educational benefits, such as social security benefits, veteran's benefits, and tuition benefits derived from parental employment at a University that were not reported in the application for aid to Cornell and receipt of awards in amounts that differ from the estimates stated in the award announcement or that were not included in the announcement. Students must report receipt of additional resources not considered in the original aid package.

Freshmen or transfer students who receive scholarships from private donors may receive a reduction to job-loan values equal to 50 percent of scholarship value up to \$300. The remainder will reduce Cornell scholarships first, if any, and then additional job-loan assistance to ensure that the total aid resources do not exceed a student's financial need.

Changes in student expenses, e.g., medical or emergency expenses, may be experienced by some students. If expenses change, students should discuss their budget with a financial aid counselor. It may be possible to adjust the self-help portion of the award to recognize additional allowable expenses; however, since additional loans will increase long-term indebtedness, students are expected to hold normal costs to Cornell's estimates of costs.

Disbursement of Awards

Cornell undergraduate scholarships and grants and BEOG program grants are usually divided in half and credited directly toward the term bill. When possible, awards are applied to the first bill in each term; however, late awards or award revisions will be applied throughout each term. If there are more credits than charges, a stipend check will be issued for the balance. It is the student's responsibility to verify the accuracy of billing charges, aid credits, and stipend checks.

Cornell Administered Gift Awards

University scholarships are awarded to undergraduate students who have demonstrated need remaining after estimating scholarships, grants, and loans from sources other than Cornell. The University allocates over \$8.5 million for scholarships that range from \$50 to \$10,000. Students are considered for all scholarships for which they are eligible.

Higher Education Opportunity Program (HEOP) grants are New York State grants awarded by Cornell to educationally disadvantaged students from low-income families who, with special counseling and other supportive services from the University, show promise of success at Cornell. Applicants must be (1) New York State residents; (2) attending the College of Architecture, Art, and Planning; Arts and Sciences; Engineering; or School of Hotel Administration; and (3) academically and economically disadvantaged according to guidelines approved by the New York State Board of Regents and the director of the budget. The amount of financial assistance and other support provided to HEOP participants is dependent on need as determined by Cornell and the program, within state guidelines. The maximum HEOP award is currently \$1,500 in student financial assistance for an academic year.

Educational Opportunity Program (EOP) grants are New York State grants awarded by Cornell to educationally disadvantaged students from low-income families who, with special counseling and other supportive services from the University, show promise of success at Cornell. Applicants must be (1) New York State residents; (2) attending the Colleges of Agriculture and Life Sciences or Human Ecology or the School of Industrial and Labor Relations; (3) academically disadvantaged according to the State University of New York definition; (4) economically disadvantaged according to guidelines approved by the Board of Regents and the director of the budget. The amount of financial assistance and other support provided

to EOP participants is dependent on need as determined by Cornell and the program, within the state guidelines. The maximum EOP award is currently \$2,200 in student financial assistance for an academic year.

Supplemental Educational Opportunity Grants (SEOG) are federal grants awarded by Cornell to undergraduate students who are U.S. citizens or permanent residents demonstrating exceptional financial need who would be unable to attend without the grant. The grants must be at least \$200 and not more than \$1,500 per year, and they may not total more than \$4,000 in four years, except for students in five-year programs who are eligible to receive up to \$5,000 total. Students must remain in good academic standing and must be making satisfactory progress to continue receiving the grant, and meet all other conditions outlined in the Financial Aid Eligibility section.

Tuition waivers are offered on a limited basis by the College of Human Ecology and the School of Industrial and Labor Relations to non-New York State residents. Recipients are chosen from needy financial aid applicants by the College Selection Committee. The standard Cornell financial aid application is required. Human Ecology offers up to eight waivers valued at actual tuition and Industrial and Labor Relations two waivers valued at \$1,550. More specific information is available from Barbara Morse, Chairperson, Division of Academic Services, College of Human Ecology (telephone 607/256-4549); and Brenda Bricker, Associate Director of Resident Instruction, School of Industrial and Labor Relations (telephone 607/256-6221).

Prizes are available on a limited basis to undergraduate students. They generally are not based on financial need and are the result of direct competition. A booklet, *Prize Competitions*, which describes all regularly established prizes, may be obtained from Mrs. Jean Morehouse, Office of the Dean of Faculty, 315 Day Hall (telephone 607/256-4843).

Employment: see "Employment at Cornell."

University Loan Programs

Several loan programs are available. No student is required to accept a loan in order to receive other types of aid. Students should discuss the possibility of replacing part of the value of a loan with a job with the coordinator of student employment in the Office of Financial Aid to determine whether employment is available.

Students accepting student loans are committing themselves to a serious legal and moral obligation: loans must be repaid. Repayment may take as long as ten years after leaving Cornell University. Students are urged to consider their ability to repay a loan, their future credit rating, and their potential indebtedness before accepting a loan. The staff of the Office of Financial Aid is willing to discuss the implications of loans on students' future financial situation.

Preloan Interviews

All students who borrow a Cornell loan (NDSL, Cornell FISL, or University loan) for the first time are required to attend an interview during the first semester that the loan is obtained; the loan will not be disbursed until after the interview. Important information concerning repayment and deferment and cancellation provisions will be discussed.

Further information about interview attendance will be provided with loan papers. Failure to attend will result in the cancellation of the loan.

Cornell Loans

National Direct Student Loans (NDSL) are loans offered to full-time students who are U.S. citizens or permanent residents. Students who have completed less than two years of a program leading to a bachelor's degree may borrow up to \$2,500; students who have completed two years towards a bachelor's degree may borrow up to \$5,000 to include any amount borrowed through a NDSL for the first two years of study; \$10,000 is the maximum for graduate study, to include any amount borrowed as an undergraduate. They are intended for students who have great financial need. At Cornell initial NDSLs are generally awarded to students whose gross family income is below \$15,000 who demonstrate financial need and meet all other criteria as described in the Financial Aid Eligibility Section. No interest is charged on this loan while the student maintains at least half-time status, but 3 percent interest is charged beginning nine months after he or she leaves school. The student has up to ten years to repay the loan after leaving school. Deferment of payment is allowed for additional graduate work and for military, Peace Corps, and VISTA service. Up to 100 percent of the loan may be cancelled for a student who becomes a special education teacher or a teacher in an economically and culturally deprived area. The promissory note contains more detailed information.

Once offered, NDSL loan money will not be credited to the student's account until the promissory note is executed and returned to the Office of Financial Aid and, if a first-time NDSL borrower, a preloan interview has been attended. Freshman, transfer, and professional school students will receive their promissory notes during the summer; the notes for upperclass and graduate students are enclosed with their award announcements. Normally the loan will be divided and credited equally to the fall and spring portions of the University billing statement.

Cornell Federally Insured Student Loans (FISL) are loans assigned to needy students to whom the office has been unable to offer a National Direct Student Loan and who live in states that do not have a state loan program and are unable to obtain an FISL loan through a lender in their state. Lenders may include banks, savings and loans associations, credit unions, and insurance companies. Federal regulation stipulates that Cornell and other university lenders cannot offer an FISL unless the student can document that he or she has been rejected for a loan by at least one lender. A letter from a lender or a notarized statement from the student is satisfactory documentation; it should be forwarded to the Cornell Office of Financial Aid. Continuing students who have previous Cornell FISL loans may continue to receive these without a rejection letter.

Undergraduates may generally borrow up to \$2,500 a year but may not exceed \$7,500 for completion of the undergraduate degree. Graduate students may borrow \$5,000 a year but may not exceed \$15,000, including any undergraduate borrowing. Loans carry an annual interest rate of 7 percent; however, no interest is charged while the student is enrolled at least half-time at Cornell and during a nine-month period after leaving Cornell. An insurance premium of one-quarter of one percent will be collected at the time of disbursement. After nine months, borrowers will

be required to begin repayment of both principal and interest and will have a maximum of ten years after leaving school in which to repay the loan. Deferment of repayment may be permitted for additional graduate work and military, Peace Corps, and VISTA service.

Upon receipt of notification from the student of inability to obtain a loan, a loan application and promissory note will be sent. The loan applications and promissory notes for upperclass students who have received prior FISL loans are enclosed with the award announcements. A check will be issued to each student at the beginning of each semester after the completed application has been approved by the U.S. Office of Education and first-time borrowers have attended the preloan interview. Further instructions will be included with the loan application.

University loans are generally awarded to students not eligible for any other loan program. Interest is 7 percent annually and begins immediately upon graduation or withdrawal from Cornell; principal payments begin in the fourth month at a minimum of \$30 per month. Deferment of principal payments is possible if the student returns to school on a full-time basis; however, interest continues to accrue and is billed annually.

Emergency short term loans at no interest are available to students who experience a delay in receiving outside awards or an emergency need. Up to \$300 may be borrowed and must generally be repaid within ninety days or the end of the term, whichever occurs first. Loans are available through the University Office of Financial Aid, 203 Day Hall, or the Colleges of Agriculture and Life Sciences and Human Ecology, the Schools of Industrial and Labor Relations and Hotel Administration, the Law School, and the College of Veterinary Medicine.

Typical Loan Repayment Schedules The following tables represent typical repayment schedules for student borrowers of Cornell loans. Borrowers should consult the promissory note carefully to ensure that they fully understand the terms of the loan before the loan is accepted, and any questions should be addressed to the Office of Financial Aid. NDSL and FISL payments are made every month.

Monthly NDSL Payments

Amount Borrowed	Amount of Payment	Number of Payments
\$ 1,000	\$30.00	35
2,000	30.00	74
3,000	30.00	120
4,000	39.00	120
5,000	49.00	120
6,000	59.00	120
7,000	69.00	120
8,000	79.00	120
9,000	89.00	120
10,000	99.00	120

Monthly FISL Payments

Amount Borrowed	Amount of Payments	Number of Payments
\$ 1,000	\$ 30.00	38
2,000	30.00	85
3,000	35.00	120
4,000	46.50	120
5,000	58.25	120
6,000	70.00	120
7,000	81.50	120
8,000	93.50	120
9,000	104.50	120
10,000	116.50	120
11,000	128.46	120
12,000	140.13	120
13,000	152.70	120
14,000	165.43	120
15,000	178.31	120

Loan Exit Interviews Federal regulations and University policy require students who have taken a National Direct Student Loan, a Federally Insured Student Loan, or a University loan from Cornell University to attend a loan interview before graduating or withdrawing from the University. Important information concerning repayment schedules and deferment and cancellation provisions will be discussed. Students must attend and should contact the loan office in 260 Day Hall to arrange for the interview immediately before leaving the University. Failure to have exit interviews or to make appropriate arrangements with the bursar's office regarding loans will result in the withholding of diplomas and transcripts until the bursar's office is satisfied that the student fully understands the extent of any loan obligations after graduation.

Employment at Cornell

Many job opportunities, on and off campus, are available to Cornell students, regardless of financial need. Employment, in moderation, can be beneficial to a student's educational experience, and earnings can often reduce or eliminate the necessity to borrow.

College Work Study Program

Cornell participates in the federally funded College Work Study (CWS) Program. Students must be U.S. citizens or permanent residents and meet all other requirements included in the Financial Aid Eligibility section. Job placement extends to most areas of University activity. Every effort is made to refer students to positions compatible with their interests and qualifications, although such opportunities are not always available. Pay rates range from \$2.90 (\$3.10 as of January 1, 1980) depending on the skills required and employment experience. Students are paid once every two weeks for hours worked. Graduate students may not work more than twenty hours a week and retain full-time student status.

Once students have earned the amount for which they are eligible, they will be terminated from the program and will be unable to continue College Work Study employment or other University employment without clearance from the Office of Financial Aid. Federal regulations prevent recipients of federal aid programs, i.e., CWS, NDSL, SEOG,

from obtaining campus job earnings that, when combined with other aid resources, would exceed their financial need as outlined on the award letter.

Students are not required to accept a job offer in order to receive other types of aid. If students want to replace all or part of the value of the job offered with a loan, they must write to or make an appointment with a financial aid counselor to discuss this option. Substitution of a loan for a job assignment can occur only if loan funds are available.

Other Employment Opportunities

Job opportunities are also available to those not participating in the work-study program. Information is available from the Office of Financial Aid, 203 Day Hall, or directly from employers. Hotel students should contact their school's Financial Aid Office for additional information on employment opportunities. Federal regulations and University policies require students receiving financial assistance from Cornell to secure a clearance from the Office of Financial Aid before accepting on- or off-campus jobs.

Federal Aid Programs

Several grant, benefit, and loan programs are available to undergraduate and graduate students by direct application to the federal government. Federal programs to which application is made through Cornell University have been described in University aid program sections.

Basic Educational Opportunity Grants (BEOG)

Application Procedures Applications and other materials are available through the Cornell Office of Financial Aid. Students may also apply for BEOG by filing a Financial Aid Form (FAF) or a Family Financial Statement (FFA).

The completed application should be submitted for processing according to the directions included on it. A calculated Student Eligibility Report (SER) will be sent to the applicant. The applicant's award is then determined by the financial aid officer at the postsecondary institution attended. Upon enrollment and submission of an SER to the Cornell Office of Financial Aid, funds will be credited to the student's institutional account.

Method of Selection of Recipients and Allocation of Awards

The Basic Educational Opportunity Grant Program is an entitlement program. Eligibility and award amounts are based on need rather than academic achievements. The applicant must be enrolled as an undergraduate student on at least a half-time basis in an approved postsecondary institution and must meet financial assistance to continue his or her education.

Financial need is determined by a formula applied to all applicants and the student eligibility index is calculated by this formula.

Awards are usually paid for up to four years of study. If the student is enrolled in a program that requires five years of study for a first degree, or if he or she is required to complete noncredit remedial courses to prepare for degree-credit enrollment, a fifth year award may be paid.

Copies of the booklets *Determination of Basic Grant Eligibility Index in Academic Year 1979-80* and *1979-80 Student Guide: Basic Grants*, and a list of approved eligible postsecondary institutions may be obtained by writing to BEOG, P.O. Box 84, Washington, D.C. 20044.

Award Schedule For 1979-80 awards are expected to range from \$200 to \$1,800, but may not exceed one-half the total cost of attendance. The amount of the award will be affected by costs of attendance and enrollment status. The BEOG award does not duplicate state awards.

Rights and Responsibilities of Recipients Students must continue to make satisfactory academic progress in the program in which enrolled. Students must not owe any refunds on Basic Grant or other awards paid or be in default on repayment of any student loan.

Before receiving payment, the student must sign an affidavit, available from the Cornell Office of Financial Aid, that all money received will be used for the cost of attendance only.

Guaranteed Student Loan Program

Application Procedures The student should obtain a loan application from a participating lending institution (bank, credit union, etc.) in his or her area of permanent residence. The completed application is presented to the financial aid officer at the postsecondary institution attended and is then routed to the lending institution and the appropriate federal government agency.

A counseling session or an interview, or both, may be required. When the loan is approved, a promissory note is signed by the student. Funds may not be disbursed earlier than August 1 for the school year beginning in the fall.

Selection of Recipients and Allocation of Awards To be eligible for a guaranteed loan a student must be 1) a U.S. citizen or permanent resident and 2) enrolled in or admitted as a matriculated student at least half time at an approved college, university, or other postsecondary institution.

Loan Schedule An undergraduate may borrow up to \$2,500 per year, up to a total of \$7,500. A graduate student may borrow up to \$5,000 per year, up to a combined total of \$15,000 including any loans for undergraduate study.

An annual insurance premium of 1 percent of the loan amount is payable in full at the time the check is issued.

Loan Interest Rates and Fees

	Percentage
Annual rate of interest and fee	8
Interest paid by student while in school and during grace period	0
Interest paid by New York State in school and during grace period	7
Insurance fee paid by student in school and during grace period	1
Annual rate of interest during repayment	7

Rights and Responsibilities of Recipients Students may borrow at a low interest rate (currently 7 percent) with no repayment as long as they remain enrolled at least half-time, and for nine months after they cease to be at least half-time students. Payment of principal may be deferred during full-time study under a graduate fellowship program approved by the U.S. commissioner of education, during up to three years of active U.S. armed forces service, during up to three years as a full-time Peace Corps or VISTA or similar national program volunteer, or during up to twelve months of unsuccessful search for full-time employment.

If a student applies for an additional loan, application must be made to the original lending institution.

Four months after ceasing to be at least a half-time student, the borrower must make formal arrangements with the lending institution to begin repayment. The following regulations apply:

- 1) The minimum monthly payment will be \$30 plus interest. Under unusual circumstances the lender, on request, may permit reduced payments.
- 2) The maximum repayment period is ten years.
- 3) The maximum period of a loan from date of the original note may not exceed fifteen years, excluding authorized deferments of payments.
- 4) Repayment in whole or part may be made at any time without penalty.

United States Bureau of Indian Affairs Aid to Native Americans Higher Education Assistance Program

Application Procedures Application forms may be obtained from the Bureau of Indian Affairs Office. An application is necessary for each year of study. An official needs analysis from the college financial aid office is also required each year. Each first-time applicant must obtain tribal enrollment certification from the bureau agency or tribe which records enrollment for the tribe.

Selection of Recipients and Allocation of Awards To be eligible, the applicant must (1) be at least one-fourth American Indian, Eskimo, or Aleut; (2) be an enrolled member of a tribe, band, or group recognized by the Bureau of Indian Affairs; (3) be enrolled in or accepted for enrollment in an approved college or university, pursuing at least a four-year degree; and (4) have financial need.

Social Security Payments to Children of Deceased or Disabled Parents

Application Procedures Application may be made at any social security office. Applicants should present the social security card, if one has been issued, and provide the following information: name and address of the institution, dates of past attendance, student ID number if any, number of credit hours carried, and whether full- or part-time status planned for next academic period.

Selection of Recipients and Allocation of Awards The applicant must be (1) single and between eighteen and twenty-two years of age; (2) financially dependent and have a deceased, disabled, or retired parent who worked long enough to qualify for social security; and (3) enrolled in a postsecondary institution (including trade and vocational schools) as a full-time undergraduate.

Award Schedule The amount of social security benefits may be affected by earnings if these are greater than \$3,000 per year, and by earnings of a parent. Checks may continue until the end of the academic period in which the student becomes twenty-two.

Rights and Responsibilities of Recipients Applicants already receiving benefits will be notified by the Social Security Administration several months before turning eighteen about what must be done upon becoming a full-time postsecondary student so that benefits will continue.

Applicants who become eligible for benefits after reaching eighteen, by the death, disability, or retirement of a parent, must apply for benefits upon beginning full-time study.

Eligible applicants who apply late may receive back payments for up to twelve months.

State Aid Programs

Several grant, benefit, and loan programs are available to undergraduate and graduate students by direct application to the state government. State programs to which application is made through Cornell University have been described in University aid program sections.

Tuition Assistance Program (TAP)

Application Procedures Applicants must apply annually to the New York State Higher Education Services Corporation (HESC), Tower Building, Empire State Plaza, Albany, New York 12255. The application deadline for the 1979-80 academic year is March 31, 1980. Application forms will be mailed, beginning in April 1979, to all: (1) students who received a TAP grant or Regents Scholarship award in 1978-79; (2) high school seniors who applied for a 1979-80 Regents Scholarship; and (3) approved postsecondary institutions and high schools in New York State.

Before submitting the application, the applicant should review it with the high school counselor or college financial aid officer, especially if the applicant had questions when the application was completed.

The Higher Education Services Corporation determines the applicant's eligibility and mails an award certificate directly to the applicant indicating the amount of the grant. The applicant presents the institutional copy of the certificate at the time of payment of tuition. The postsecondary institution may defer payment until receipt of the award certificate.

Selection of Recipients and Allocation of Awards

Tuition Assistance Program is an entitlement program. There is neither a qualifying examination nor a limited number of awards. The applicant must (1) be a New York State resident and U.S. citizen or permanent resident; (2) be enrolled full time and matriculated at an approved New York State postsecondary institution; (3) have, if dependent, a family net taxable income below \$20,001, or if independent and single with no tax dependents, a net taxable income below \$5,667; and (4) be charged a tuition of at least \$200 per year.

The current definition of independent status follows. (Note: independent status under the state definition does not necessarily ensure independent status for federal or Cornell aid programs.) Criteria for 1979-80 were not available at the time of publication.

- 1) 35 years of age or older on July 1, 1978; or
- 2) 22 years of age or older on July 1, 1978 and not:
 - a) resident in any house, apartment, or building owned or leased by parents for more than two consecutive weeks in calendar years 1977, 1978, 1979,
 - b) claimed as a dependent by parents on their federal and state income tax returns for 1977, 1978, 1979,
 - c) recipient of gifts, loans, or other financial assistance in excess of \$600 from parents in calendar years 1977, 1978, 1979; or
- 3) Under 22 years of age on July 1, 1978 and meeting all other requirements of (2) above and, in addition, able to meet at least one of the following requirements:

Tuition Assistance Program (TAP) Award Schedule as of April 1, 1978

Income (Net Taxable Balance)	Undergraduate		Graduate**	
	Schedule C Dependent or Married	Schedule E* Independent and Single	Schedule B Dependent or Married	Schedule D* Independent and Single
\$0-1,000	\$1,800	\$1,800	\$600	\$600
2,000	1,800	1,500	600	350
3,000	1,795	1,200	534	100
4,000	1,725	900	467	100
5,000	1,665	600	400	100
6,000	1,595	0	334	0
7,000	1,525	0	266	0
8,000	1,455	0	200	0
9,000	1,375	0	134	0
10,000	1,295	0	100	0
11,000	1,215	0	100	0
12,000	1,115	0	100	0
13,000	1,015	0	100	0
14,000	915	0	100	0
15,000	795	0	100	0
16,000	675	0	100	0
17,000	555	0	100	0
18,000	415	0	100	0
19,000	275	0	100	0
20,000	200	0	100	0
Over 20,000	0	0	0	0

* Independent students must have a net taxable balance income below \$5,667 to receive an award.

** Awards for all annual tuitions greater than \$600.

Note: TAP awards are reduced by \$200 per year for Schedule C and Schedule E students who have received four or more payments.

The applicant must (1) have been a legal resident of New York State for at least one year immediately preceding the first term for which application is made; (2) either graduate from high school by the end of the school year in which the examination was taken or be accepted as a full-time matriculated student at a college or other approved school located in New York State by September of that year; and (3) not previously have competed for a Regents Scholarship. Requirements two and three may be waived for reasons satisfactory to the commissioner of education.

Award Schedule The award is \$250 per year, for up to five years, depending on the normal length of the program in which the recipient is enrolled.

Regents Awards for Children of Deceased or Disabled Veterans

Application Procedures A special application, obtainable from the high school principal or counselor, must be filed with New York State Higher Education Services Corporation (HESC), Tower Building, Empire State Plaza, Albany, New York 12255. Documentary evidence to establish eligibility is required with the application. Consult a high school counselor for assistance.

Selection of Recipients and Allocation of Awards The applicant must be (1) the child of a veteran who died, or who has a current disability of 50 percent or more, or who had such disability at the time of death, resulting from U.S. military service during one of the following periods: April 16, 1917—November 11, 1918, December 7, 1941—December 31, 1946, June 25, 1950—July 27, 1953, October 1, 1961—March 29, 1973, and; (2) a legal resident of New York State. Legal residence in New York State of the parent at the time of entry into military service, or, if the parent died as the result of military service, at the time of death is also required.

Regents awards to children of deceased or disabled veterans are independent of family income or tuition charge and are in addition to other grants or awards to which the applicant may be entitled.

Award Schedule The amount of the award is \$450 per year, for up to five years of full-time study in a college or in a hospital nursing school in New York State.

State Aid to Native Americans

Application Procedures Application forms may be obtained from the Native American Education Unit, New York State Education Department, Albany, New York 12234. The completed application form should be forwarded by the applicant to the Native American Education Unit along with the following materials: (1) official transcript of high school record or photostat of General Equivalency Diploma; (2) letter(s) of recommendation from one or more leaders in the community attesting to personality and character; (3) personal letter setting forth clearly and in detail educational plans and desires; (4) signature of the parents of minor applicants approving education plans; and (5) official tribal certification form.

Selection of Recipients and Allocation of Awards The applicant must be (1) a member of one of the Native American tribes located on reservations within New York State; (2) have graduated from an approved high school, or have earned a General Equivalency Diploma, or be enrolled in a program in an approved postsecondary

institution leading to degree-credit status and the General Equivalency Diploma; and (3) enrolled in an approved postsecondary institution in New York State.

State Aid to Native Americans is an entitlement program. There is neither a qualifying examination nor a limited number of awards.

Award Schedule The award is \$1,100 per year for a maximum of four years of full-time study at a minimum of 12 credit hours per semester. Students registered for less than this number will be funded at approximately \$46 per credit hour.

Rights and Responsibilities of Recipients Students are responsible for notifying the Native American Education Unit in writing of any change in student status or program or institutional enrollment.

Work Incentive Program (WIN)

Application Procedures Application is through the New York State Department of Social Services, which determines eligibility for Aid to Dependent Children (ADC). ADC recipients may be eligible for WIN.

Selection of Recipients and Allocation of Awards

As part of achievement of the primary goal of the WIN Program, which is to place eligible applicants in permanent unsubsidized employment, applicants may be registered with the New York State Department of Labor for institutional training. Training must be related to jobs which are, or are likely to become, available in the WIN project area. WIN registrants may be placed in training programs which do not exceed one year, e.g., to be considered for the program, a registrant wishing to complete a bachelor's degree must have completed three years toward this goal and be enrolled in a vocationally oriented curriculum.

Award Schedule Tuition and books are paid for by WIN. Registrants are paid \$2 per day for training-related expenses, plus an incentive allowance of up to \$30 a month which is not included in ADC assistance payment computations. Child care costs may also be paid.

Rights and Responsibilities of Recipients Each participant in the institutional training component of the WIN program has the responsibility of attending training, doing the best he or she can to complete training and to obtain regular unsubsidized employment.

Other State Financial Aid Programs

A number of additional state programs exist, of interest to relatively smaller groups of students and prospective students than those described on the preceding pages. For detailed information contact the New York State Education Department, Division of Educational Testing, Albany, New York 12234.

Tuition Deduction, and the Parents' and Students' Savings Plan (PASS)

Beginning with the 1978 tax year, New York State resident parents (and others who pay the tuition of their dependent, full-time students) may take a deduction for part of this tuition payment for state and city income tax purposes. Resident parents may also deduct amounts equivalent to payments into a qualified higher education fund. In both cases deductions are from federal adjusted gross income. For further information parents should contact the

Department of Taxation and Finance, Taxpayer Assistance Bureau, Building 9, State Campus, Albany, New York 12227.

For further information concerning financial aid programs, please consult the following offices:

Undergraduates: Office of Financial Aid, 203 Day Hall, Ithaca, New York 14853 (607/256-5145)

International students: International Student Office, 200 Barnes Hall, Ithaca, New York 14853 (607/256-5243)

Statement of Student Rights and Responsibilities

- 1) Students have the right to be informed of and to apply for all financial aid programs for which they are eligible and the responsibility to apply by program deadlines and to acquaint themselves with the application procedure.
- 2) Students have the right to know how financial need and award packages will be determined and to request a review of the financial aid package should circumstances change to negatively affect the family's ability to meet costs of attendance and the responsibility to notify the University should new resources become available to the student which were not originally considered.
- 3) Students who borrow from the University have a right to full disclosure of the terms and provisions of loan programs, including typical repayment schedules and the responsibility to attend preloan and exit interviews before borrowing and leaving the University. They must repay loans on a timely basis and keep the University informed of their current address.
- 4) Students have the right to be informed of financial aid policies and have the responsibility to be aware of all published financial aid policies and to comply with these policies.
- 5) Students have the responsibility to submit accurate information on all University documents relating to the financial aid application process.

The Students

Cornell University has a student body of about 16,400 in its eleven schools and colleges at Ithaca. Over one-quarter of the students are engaged in graduate and professional study. The student body is diverse in interests and background with 51 percent of the undergraduates from New York State, 39 percent from the remaining fifty states, and 10 percent from over ninety foreign countries. See charts on pages 22-23 for enrollment summary and geographical distribution.

About 38 percent of the undergraduate men live in rooms, apartments, or with their families, 23 percent in fraternities and associations, and 39 percent in University residence halls. Nine percent of the undergraduate women live in sororities, cooperatives, and associations; approximately 52 percent live in University residence halls; and 39 percent in off-campus apartments or with their families. Over 40 percent of the undergraduate men belong to fraternities; about 17 percent of the women are sorority members. Graduate students live in apartments, rooming houses, the Sage Graduate Center, Cascadilla Hall, and Hughes Hall.

Retention and Graduation of Undergraduates

The table on page 22 follows the freshman class entering in the fall of 1972 through five years until the beginning of the sixth year (fall 1977). It is important to go beyond the normal four years when most students would have received baccalaureate degrees to account for those in longer programs, especially the five-year program in architecture, for students who left the University for short periods but returned to complete degrees, and for others who may have "lost time" by changing from one program to another within the University.

By the fall of 1977, 79.5 percent of the students that entered endowed undergraduate units in 1972 (Architecture, Art, and Planning; Arts and Sciences; Engineering; and Hotel Administration) had either graduated or were still enrolled. In the statutory units (Agriculture and Life Sciences; Human Ecology; and Industrial and Labor Relations) 82.7 percent had graduated or were still working toward a Cornell degree.

Enrollment, Fall Term, 1978

	First Year			Second Year			Third Year			Fourth Year			Fifth Year		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Endowed															
Architecture, Art, and Planning	52	47	99	47	38	85	65	36	101	52	48	100	42	13	55
Arts and Sciences	499	433	932	517	466	983	472	443	915	478	415	893			
Engineering	535	102	637	483	73	556	503	73	576	488	68	556			
Hotel Administration	83	41	124	128	33	161	127	45	172	144	46	190			
Unclassified	26	11	37	74	20	94									
Total endowed undergraduate	1,195	634	1,829	1,249	630	1,879	1,167	597	1,764	1,162	577	1,739	42	13	55
Statutory															
Agriculture and Life Sciences	307	295	602	347	285	632	480	408	888	483	355	838			
Human Ecology	25	209	234	37	220	257	38	301	339	36	263	299			
Industrial and Labor Relations	91	56	147	92	50	142	106	68	174	99	56	155			
Total statutory undergraduate	423	560	983	476	555	1,031	624	777	1,401	618	674	1,292			
Total undergraduates	1,618	1,194	2,812	1,725	1,185	2,910	1,791	1,374	3,165	1,780	1,251	3,031	42	13	55

Retention and Graduation of Undergraduate Students
Cornell University
Freshmen Entering Fall 1972 (Class of 1976)

Year	Percentage Graduated by End of Year	Year	Percentage Enrolling at Beginning of Year*	Total Percentage of Graduated and Enrolled
Endowed Colleges				
1	—	2	89.4%	89.4%
2	0.1%	3	80.0	80.1
3	3.6	4	77.0	80.6
4	68.2	5	11.8	80.0
5	77.7	6	1.7	79.4
Statutory Colleges				
1	—	2	90.1%	90.1%
2	0.3%	3	81.8	82.1
3	3.0	4	79.5	82.5
4	75.0	5	7.6	82.6
5	80.4	6	2.3	82.7

*Includes students who have withdrawn, taken leaves of absence, and who have returned.

Source: New York State Education Department Form 2.9.

	Professional and Graduate			Special			Total		
	M	F	T	M	F	T	M	F	T
Endowed									
Architecture, Art, and Planning				1	3	4	259	185	444
Arts and Sciences				3	9	12	1,969	1,766	3,735
Engineering				1	1	2	2,010	317	2,327
Hotel Administration				1		1	483	165	648
Unclassified							100	31	131
Total endowed undergraduate				6	13	19	4,821	2,464	7,285
Statutory									
Agriculture and Life Sciences				10	11	21	1,627	1,354	2,981
Human Ecology					8	8	136	1,001	1,137
Industrial and Labor Relations				3		3	391	230	621
Total statutory undergraduate				13	19	32	2,154	2,585	4,739
Total undergraduates				19	32	51	6,975	5,049	12,024
Total professional schools	908	377	1,285	4	6	10	912	383	1,295
Total Graduate School	2,343	1,031	3,374	4	3	7	2,347	1,034	3,381
Total Ithaca	3,251	1,408	4,659	27	41	68	10,234	6,466	16,700

Regional Origin of Students

New England	1,669
New York State	8,545
Mid-Atlantic	2,597
Southeast	338
Midwest	865
Southwest	537
Northwest	280
Foreign and United States possessions	1,602
Total	16,433*

*Figures are for fall 1978 and do not include extramural students, students registered in absentia, or students in the New York City divisions.

Student Responsibilities

The student identification card is furnished by the University, issued by the Office of the University Registrar, and validated at the time of University registration. It remains the property of the University and must be returned to the registrar's office, 222 Day Hall, when the student is no longer enrolled (See "Student Identification Card" in the *Policy Notebook for Students, Faculty and Staff* for further information.)

In extracurricular affairs and conduct, Cornell students have today, as they had in the University's infancy, maximum freedom to govern themselves and responsibility for the use they make of this freedom. The student, both as an individual and as a member of any student organization, however, is responsible for adhering to all applicable regulations set forth in the *Policy Notebook for Students, Faculty and Staff*. This booklet is given to every new student and extra copies are available in the Office of the Dean of Students. In addition to the Campus Code of Conduct, the *Policy Notebook* contains a Statement of Student Rights, a Code of Academic Integrity, the University policy on access to and release of student records, information on the University judicial system, library and motor vehicle regulations, and other policies and regulations.

Students are responsible for meeting all requirements for the courses in which they are enrolled as laid down by the faculty members teaching the courses. It is also the student's responsibility to be aware of the specific major, degree, distribution, college, and graduation requirements necessary to complete his or her chosen program of studies. Students should know how far they have progressed in meeting those requirements at every stage of their academic career.

Student Records

The University policy on access to and release of student records conforms to the law, Family Educational Rights and Privacy Act of 1974. See the *Policy Notebook for Students, Faculty and Staff* for details of University policy.

Student Directory

The *Student Directory* is compiled from "directory information" as defined by the Family Educational Rights and Privacy Act, and collected during University registration. Directory information may be released unless the student indicates at the time of registration that his or her information is to be excluded from release. In order to exercise this right students must inform the Office of the University Registrar by filling out the appropriate form provided. The names of these students appear on the Exclusion List which is distributed to all appropriate University Offices, and they are not listed in the *Student Directory*.

Orientation

An orientation program for *all* new students is held each fall, starting just before the beginning of classes. Orientation normally includes meetings with deans and college personnel of the various University divisions, lectures relating to academic programs, a convocation, living-unit discussion groups conducted by upperclass student orientation counselors, explanation of the wide range of extracurricular activities available, and a number of other events, all of which are designed to help the new student become acquainted with Cornell and the Ithaca area.

Orientation counselors are upperclass students who have volunteered their services and have been specially trained for the orientation program. They plan social events, help new students get settled, aid with registration procedures, and help answer the many questions that occur to new students.

Social events include the New Student Olympics and Cornell Night lectures and workshops. Orientation activities are also scheduled for the parents of new students, including tours, family orientation workshops, the President's Convocation, and various programs conducted by the schools and colleges, the student unions, residence halls, Career Center, and Financial Aid Office. A complete schedule of all events for fall orientation will be found in the orientation brochure, which is mailed during the summer to all new students or may be picked up on arrival at Cornell.

An orientation program on a smaller scale is conducted for new students entering in January, with library tours and various meetings with college and office personnel as well as social activities in the residence halls and unions. Tours of the campus and libraries, meetings with orientation counselors and academic advisers, college convocations, and social activities are planned to help the new student meet other students and become familiar with the campus. Many students admitted in January are transfers who live in the Transfer Center located in Clara Dickson Hall. Another committee, Grad for Grads, plans orientation programs for new graduate students entering in August and January. All of these programs are organized and coordinated by the Orientation Steering Committee (a student group) and the activities staff of the Office of the Dean of Students in 103 Barnes Hall.

Advanced Placement of Freshmen

Entering freshmen may qualify for advanced placement or credit or both on the recommendation of the appropriate departments of instruction and with the approval of their college or school. Acceptance of advanced placement is not necessary. Students may reject advanced placement and repeat a course, thereby relinquishing the advanced placement credit.

Advanced Placement Examinations Examinations sponsored by the Advanced Placement (AP) Program and the College-Level Examination Program (CLEP) of the College Entrance Examination Board (CEEB), and the United States Armed Forces Institute are considered. Entering freshmen should have their scores sent to their college or school office (see list at the end of this section). Placement and credit on the basis of these examinations will usually be determined during the summer, and students will be notified before course scheduling.

Departmental Advanced Standing Examinations In certain subjects, students may also qualify for advanced placement or credit or both on the basis of departmental examinations given on campus during orientation week. A schedule of these examinations will appear in the orientation newspaper that will be mailed to entering students in late summer. The departments that award advanced placement and credit on the basis of CEEB Advanced Placement Examinations, CEEB College-Level Examination Program tests, or departmental examinations are shown below.

Transfer of Credit Entering freshmen who have completed college courses for which they wish to receive credit toward their Cornell degree should send transcripts and course descriptions to their college or school office (see list at the end of this section). The award of credit or placement for such courses is determined by the appropriate departments according to individual school and college guidelines. Because policy for using advanced placement credit varies according to each college's or school's professional and academic goals, students should consult their college or school office to determine how they may use such credit.

Foreign Credentials Information regarding Cornell's advanced standing policy for foreign credentials may be obtained by contacting the Assistant Director for Undergraduate Foreign Admissions, Cornell University, 200 Barnes Hall, Ithaca, New York 14853, U.S.A. Students holding foreign credentials who feel they may be eligible for advanced standing consideration should contact the International Student Office prior to enrollment for clarification of the advanced standing policy.

Written Inquiries Many department and school and college offices encourage students to contact them with any questions they may have. Addresses given in the following sections may be completed by adding Ithaca, New York 14853.

Biological Sciences

Students earning a score of 5 on the CEEB Advanced Placement Examination in biology, or whose performance on the special departmental examination is superior, will receive eight credits and be permitted exemption from all introductory biology courses.

Nonmajors with a score of 4 or 5 on the AP Examination or departmental examination can receive, respectively, six or eight advanced placement credits. This satisfies part or all of the distribution requirement in biological sciences for the Colleges of Agriculture and Life Sciences, Arts and Sciences, and Human Ecology.

Biological sciences majors (and other students who expect to take advanced biology courses) who receive a score of 4 must fulfill the introductory biology requirement by taking Biological Sciences 103–104 or 103–208, or four credits of work in Biological Sciences 105–106 selected with the advice and approval of the instructors.

Students who feel prepared may arrange to take the departmentally administered examination by requesting permission in advance from the General Biology Office, Cornell University, 310 Roberts Hall. This examination is given only once, during orientation week. A sheet describing the examination content and format, eligibility, fee, and credit is available by writing to that office.

Chemistry

The Department of Chemistry offers two sequences that satisfy prerequisites for further work in the department: Chemistry 207–208, an eight-credit sequence that includes qualitative analysis; and Chemistry 215–216, a nine-credit sequence that includes qualitative and quantitative analysis. The college-level chemistry course offered by some secondary schools corresponds roughly to Chemistry 207–208. Chemical Bond Approach (CBA) and Chem Study (CHEMS) are not considered sufficient preparation for advanced placement.

Freshmen may qualify for advanced placement and eight advanced standing credits for Chemistry 207–208 by earning a score of 5 on the CEEB Advanced Placement Examination in chemistry or by passing an advanced standing examination offered by the department. Before taking the special examination, students should consult Professor R. C. Fay. A score of 3 or 4 on the CEEB Advanced Placement Examination earns four credits for Chemistry 207 and placement in Chemistry 208.

Students receiving advanced placement credit for Chemistry 207 or 207–208 who are interested in a major in chemistry or a related science should consider taking Chemistry 215–216 and should consult Professor G. Hammes.

Classics

For advanced placement and credit in Latin and Greek, students should consult the Department of Classics, Cornell University, 120A Goldwin Smith Hall. Advanced placement and credit are determined as outlined below.

Latin Students may be tentatively placed in a 300-level Latin course if they achieve a score of 4 or 5 on the CEEB Advanced Placement Examination, but they must also take the department's own placement examination during

orientation week. A student who is permitted to register in a 300-level course will be given six advanced placement credits.

Greek For information concerning advanced placement consult the chairman of the Department of Classics.

Economics

The Department of Economics will grant six advanced placement credits to a student who scores 600 or higher in the CEEB College-Level Examination Program test in introductory economics. Such a student will be admitted to courses for which Economics 101 and 102 are prerequisites.

For further information write to the Department of Economics, Cornell University, 416 Uris Hall.

English

For exceptionally well-qualified freshmen the Department of English will recommend three or six advanced placement credits, and freshmen for whom such credit has been recommended will also be eligible to enroll in English 270, 271, or 272.

The department will consider awarding advanced placement credit to freshmen who receive scores of 750 or above on the CEEB College Placement Test (CPT; formerly CEEB Achievement Test) in English composition, 710 or above on the CEEB College Placement Test in literature, or 5 on the CEEB Advanced Placement Examination. Students who seek advanced placement credit are encouraged to take as many of these tests as possible.

Students who receive scores of 700 to 749 on the CEEB College Placement Test in English composition, 700 to 709 on the CEEB College Placement Test in literature, or 4 on the CEEB Advanced Placement Examination will be eligible to take an advanced standing examination offered by the department during orientation week. This examination will be an important factor in awarding advanced placement credit. The department will also consider secondary school grades in determining whether credit will be awarded.

Advanced placement credit awarded in English may not be used to satisfy the Freshman Seminar requirement or the humanities or expressive arts requirement of the College of Arts and Sciences.

If space permits, freshmen who have not received advanced placement credit but whose test scores and secondary school records indicate they are qualified may enroll in English 270, 271, or 272 during their first semester.

German Literature

The Department of German Literature grants three credits to students with a score of 5 on the CEEB Advanced Placement Examination in German literature. Students who receive a score of 4 will be awarded three credits if they achieve a grade of B+ or higher in a course in German literature.

History

The Department of History will grant four credits to students who score 4 or 5 on the CEEB Advanced Placement Examination in European history and four credits to those with such scores in the American history examination.

These credits may not be used to fulfill requirements of the history major or distribution requirements of the College of Arts and Sciences.

History of Art

The Department of History of Art will review examination papers of students with scores of 4 or 5 on the CEEB Advanced Placement Examination. Students may be eligible to register for 300-level courses in the Department of History of Art and may also receive three credits. Questions concerning advanced placement may be directed to the department chairman, Cornell University, 35 Goldwin Smith Hall.

Mathematics

The Cornell calculus sequences discussed below are described under "Basic Sequences" in the Department of Mathematics section of the *Announcement of Academic Information*.

The regular freshman calculus courses at Cornell do not differ substantially from calculus courses given in many high schools, and it is best to avoid repeating material that has already been covered at an appropriate level. Secondary school students who have had the equivalent of at least one semester of analytic geometry and calculus should, if possible, take one of the CEEB's two Advanced Placement Examinations (calculus AB or calculus BC) during their senior year.

Students with a grade of 4 or 5 on the BC examination may take the appropriate third-semester course (Mathematics 293, 295, or 221) or the sequence 214–215–216–217, but students entering Mathematics 293 may have to make up some material on partial differentiation. Students with a 3 on the BC examination or a 4 or 5 on the AB examination may take the appropriate second-semester course (Mathematics 192, 122, or 112). Students with a 2 on the BC examination or a 3 on the AB examination may take one of the second-semester courses (Mathematics 192 or 112). Advanced placement credit will be awarded appropriately; however, no credit will be granted for a grade of 1 on the BC or of 1 or 2 on the AB examination.

A grade of 3 or higher on the BC examination satisfies the distribution requirement in mathematics for students in the College of Arts and Sciences.

The placement examination in mathematics is offered at Cornell only during orientation week and should be taken by students who:

- 1) have had at least a semester of calculus but did not take a CEEB Advanced Placement Examination;
- 2) have received a 2 on the BC examination or a 3 on the AB examination and want to enter the upper sequence; or
- 3) believe that the placement assigned on the strength of the CEEB Advanced Placement Examination is not high enough in their case.

Students are strongly urged to take the departmental placement test even if they feel that their grasp of the material is uncertain. The grade on this test does not become part of a student's record. No advance registration for the departmental examination is necessary.

Students entering the upper sequence who have a firm grounding in the first semester of calculus but cannot omit the second may, with the consent of the Department of Mathematics, take Mathematics 122 and 221 simultaneously in their first semester. Thus students who take Mathematics 222 in the second semester may have completed the sophomore course by the end of their first year.

Modern Languages

Students who have studied a language for two or more years and want to continue study in that language at Cornell must present the results of a College Placement Test (CPT; formerly CEEB Achievement Test) for placement. Language course placement is made using guidelines that match CPT reading scores with various levels of courses. In cases where no CPT exists for a particular language, the Department of Modern Languages and Linguistics designates a professor to handle placement for that language. Students who have had a year of formal study or substantial informal study since they last took a CPT are permitted to take the examination again during orientation week.

Advanced standing credit may be entered on a student's record as follows:

- 1) For high school work three to eight credits may be granted for the equivalent of 200-level courses. Credit is based on performance on the CEEB Advanced Placement Examination, Cornell's advanced standing examination, or a special departmental examination. To be eligible for Cornell's advanced standing examination, students must have earned a score of 700 or above on the reading section of the College Placement Test (CPT; formerly a CEEB Achievement Test). A student who has received three credits by scoring 4 or 5 on the CEEB Advanced Placement Examination is advised to take the Cornell advanced standing examination. Outstanding performance on this examination could provide three additional credits.
- 2) For formal language work at an accredited college, credit is considered by the department upon submission of a transcript and may be entered on the student's Cornell record.
- 3) Native speakers of languages other than English may, upon examination by the appropriate professor, be granted a maximum of six credits if they can demonstrate proficiency equivalent to course work on the 200 level or above at Cornell. Additional credit will be considered only for those who pursue advanced work in their native language.

For further information contact the Department of Modern Languages and Linguistics, Cornell University, 203 Morrill Hall.

Music

Advanced placement and credit are awarded only in music theory and only on the basis of a comprehensive examination administered by the Department of Music, normally during orientation week. If special arrangements are made, the examination will be administered at other times during the academic year. All students interested in taking this examination should consult Professor D. R. M.

Paterson. Inquiries may be directed to the Department of Music, Cornell University, 124 Lincoln Hall (telephone 607/256-4097).

Near Eastern Studies

For advanced placement and credit in Hebrew and Arabic, students should consult the Department of Near Eastern Studies, Cornell University, 161 Rockefeller Hall. Advanced placement and credit are determined as outlined below.

Hebrew Students who achieve scores of 650 or above on the College Placement Test (CPT; formerly the CEEB Achievement Test) will receive five credits and may be admitted to Near Eastern Studies 301, Advanced Hebrew. Students showing evidence of knowledge beyond NES 301 will receive eight advanced placement credits in Hebrew.

Arabic Placement and credit are determined by departmental examination.

Physics

Advanced placement and credit are awarded on the basis of the CEEB Advanced Placement Examination in physics (physics B or physics C), certain international examinations, or the departmental examination (which may be taken during orientation week or at other times as arranged). For permission to take the departmental examination, consult Professor H. Newhall, 101 Clark Hall. Results of the CEEB Advanced Placement Examination are reviewed individually by the Department of Physics, using the guidelines discussed below.

Physics B Students earning a score of 4 or 5 may receive eight credits for Physics 101 or 102. Those earning a score of 5 in physics B with a score of 4 or 5 in calculus BC or a score of 5 in calculus AB may choose to accept four credits in Physics 112 or 207 instead of eight credits in Physics 101 and 102. Those earning a score of 3 will receive four credits in Physics 101.

Physics C To receive credit in calculus-based physics courses, a student should be eligible for advanced placement or transfer credit in one semester of the mathematics calculus sequence for each physics course credited.

- 1) *C-Mechanics* Students earning a score of 4 or 5 will receive four credits in Physics 112 or 207.
- 2) *C-Electricity and Magnetism* Students earning a score of 4 or 5 may be eligible for four credits in Physics 208, and students earning a score of 5 will be eligible for four credits in Physics 213, but all such students should first meet with Professor R. Cotts, 522 Clark Hall.

Advanced placement into a next-in-sequence course depends on the completion of the appropriate mathematics prerequisites before enrolling. To qualify for advanced placement credit, it is not necessary to continue the study of physics.

General information and advice may be obtained from Professor R. Cotts, 522 Clark Hall, or from the Department of Physics, Cornell University, 113 Clark Hall.

Psychology

Students who have scored well on the CEEB College-Level Examination Program psychology test may receive advanced placement credit in psychology. Those interested in taking further courses in psychology should consult a faculty member in the Department of Psychology, Cornell University, 206 Uris Hall.

Advanced placement based on the CEEB test may not be used to satisfy the distribution requirement in the College of Arts and Sciences. Credit toward the requirements of a major in psychology will depend on the recommendation of the student's major adviser.

Romance Studies (French and Spanish Literature)

The Department of Romance Studies grants three credits to students with a score of 5 on the CEEB Advanced Placement Examination in French or Spanish literature. Students who receive a score of 4 will be awarded three credits if they achieve a grade of B+ or better in an introductory course in French or Spanish literature.

Sociology

The Department of Sociology will recommend three advanced placement credits for students who receive the equivalent of a B on the CEEB College-Level Examination Program sociology test and whose essays are considered acceptable by the department. Students receiving this credit will be eligible for placement into courses for which an introductory course in sociology is the prerequisite.

For further information contact the Department of Sociology, Cornell University, 323 Uris Hall.

Further Information

For further information about advanced placement contact the person in the appropriate college or school listed below. Entering freshmen should have their advanced placement test scores sent to their school or college office.

College of Agriculture and Life Sciences

Ruth K. Stanton
Cornell University
192 Roberts Hall

College of Architecture, Art, and Planning

M. Sophie Newhart
Cornell University
147 Sibley Hall

College of Arts and Sciences

Michele T. Crane
Cornell University
144 Goldwin Smith Hall

College of Engineering

Jane H. Pirko
Cornell University
170 Olin Hall

School of Hotel Administration

Raymond B. Cooke
Cornell University
138 Statler Hall

College of Human Ecology

Joyce H. McAllister
Cornell University
146 Martha Van Rensselaer Hall

School of Industrial and Labor Relations

Virginia W. Freeman
Cornell University
101 Ives Hall

Language Placement Tests

Students who have had two or more years of language study in high school and do not have a recent CEEB College Placement Test reading score must take a CEEB College Placement Test (CPT; formerly CEEB Achievement Examination) in the language they wish to continue at Cornell. If there is no College Placement Test for that language students must arrange a departmental interview. Language placement tests are given at the beginning of each fall and spring semester.

Information about times and places to take placement tests is available in the orientation newspaper, the Office of Guidance and Testing, and the Department of Modern Languages and Linguistics. Students must register for these tests at the Office of Guidance and Testing, 203 Barnes Hall, and pay a \$4 fee. For more information, see "Language Course Placement and Credit" in the College of Arts and Sciences section of the *Announcement of Academic Information*.

University Registration

University registration is the process by which the University registrar and colleges certify the eligibility of students to enroll in courses and purchase or use a variety of services available at the University, such as Cornellcard, Co-op Dining, libraries, special bus passes, and housing. University registration includes the issue of or validation of the student identification card and the collection of information needed for the student directory and state and federal reports. University registration is held on the dates stated in the University Calendar at a time and place announced well in advance of the beginning of each semester.

Health Requirements

In order to register for the first time at the University, all new students must either have completed a health history form and had a recent physical examination, or they must make an appointment to do so at the time of registration by signing up at the Health Services desk.

Continuing students who have never completed these requirements will *not* be permitted to register until they have complied.

If students have not had a tetanus inoculation within the past six years, they will be required to get one, either from their own physician or from a Health Services physician. The fee for these inoculations is approximately \$3.50 and the fee for a physical examination is approximately \$25.00.

Foreign students should also refer to page 34 for additional health requirements applicable to them.

Registration "Holds"

A student whose records have not been cleared for any reason is not eligible to register or enroll in courses. Registration "holds" are placed on the records of students (1) with outstanding financial obligations to the University; (2) who have not fulfilled the health requirements; (3) who have unresolved matters with the college office; and (4) with unresolved matters with the Office of the Judicial Administrator.

Late Registration

The final date for late registration coincides with the last day for adding courses (see "University Calendar"). Late registrants are assessed a \$10 late processing charge. Requests to waive the charge will be acted on favorably only for reasons of academic involvement.

The University does not permit after-the-fact registration in which persons attend classes and pass courses before seeking to register and receive official course credit.

The University reserves the right to require unauthorized nonregistered persons who attend classes or in other ways seek to exercise student privileges to leave the University premises. The University Registrar will notify the appropriate college or school about such cases and ask that office to contact the person concerned.

Course Enrollment

Course enrollment for the next semester at Cornell takes place partway through the current semester. Dates are announced in advance and are usually posted in the school and college offices. Course enrollment generally runs for two weeks. Each college or school notifies students about special procedures. Students are often expected to meet with their advisers during this two-week period to check that the courses they plan to take will ensure satisfactory progress toward a degree. Students complete an optical mark course enrollment form, then return the form to their college office. The forms are processed and each student is sent a Course Confirmation Statement, listing the courses processed from the enrollment form. Class schedules are distributed later by the college offices, often during the same days as University Registration.

New students and transfer students are sent course enrollment instructions by their college offices before they arrive on campus. Procedures vary from college to college.

Students who fail to submit a course enrollment form during the designated period may be charged a late fee. The fees are listed in the chart in the following section.

Course Add/Drop/Change Period

Students may adjust their schedules during add/drop/change periods. Length of periods varies according to colleges. An optical mark form is completed by the student and signed by both the student's adviser and an appropriate representative of the department offering the course (an instructor, department staff member, or college registrar, depending on the college). The completed and signed form must be returned to the student's college office to be processed. (See "University Calendar" for add period and consult individual colleges for drop period.) See chart below for course add/drop/change fee.

Late Course Enrollment and Late Add/Drop/Change Fees

Academic Unit	Late Course Enrollment Fee	Late Course Add/Drop/Change Fee
College of Agriculture and Life Sciences	No fee	No fee
College of Architecture, Art, and Planning	\$10	\$10*
College of Arts and Sciences	\$10	\$10*
College of Engineering	\$10	\$10
Graduate School	\$10	\$10
School of Hotel Administration	No fee	No fee
College of Human Ecology	\$10	\$10*
School of Industrial and Labor Relations	No fee	No fee

*Consult the college office for special considerations and requirements.

Miscellaneous Services of the Registrar's Office

Notary Service Notary service is available in the Office of the University Registrar and the Financial Aid Office.

Enrollment Certification Students needing certification of enrollment, proof of degree received, or verification of information about current and former student status at the University may obtain these items at the Office of the University Registrar, 222 Day Hall.

Name Changes Names may be changed on official University records by a special procedure implemented through the Office of the University Registrar, 222 Day Hall.

Business and Preprofessional Study

Undergraduate Business Study

Undergraduate study and preparation for business are found in many different schools and colleges at Cornell. Students most frequently take courses in more than one area, as well as in related fields, to construct a program to suit individual interests and career objectives. Each of the following areas provides a different focus for application and use of business study and training, and students should consider carefully the specific implications of each program when making a choice. (Graduate study is available in the Graduate School of Business and Public Administration as well as in graduate fields following each of the undergraduate options.) The areas most often pursued include:

- applied economics and business management (Agriculture and Life Sciences)
- consumer economics and public housing (Human Ecology)
- economics (Arts and Sciences)
- engineering
- hotel administration
- industrial and labor relations

Applied economics and business management provides instruction appropriate for both agricultural and nonagricultural use. Economics, marketing, finance, public affairs management, food industry management, resources management, and distribution processes are examples of specific areas available. There is greater emphasis on the application of these areas and less on the theoretical aspects of economic theory and money, currency, and banking. (These subjects would be more easily pursued in the Department of Economics.)

Economics provides a broad view of that social science concerned with the description and analyses of the production, distribution, and consumption of goods and services, the understanding of monetary systems, and the comprehension of economic theories and models. It is more often viewed as preprofessional than as training for immediate practice in business or economics.

Engineering is an area of professional study that provides much of the management personnel of modern industry. Engineers frequently climb the ladders of technological management, which then lead to more general management responsibilities — more than half of the management-level personnel of major corporations such as General Electric, Xerox, IBM, and DuPont have engineering degrees. In addition to becoming managers by being effective technical supervisors, many students enter engineering explicitly anticipating graduate business education, judging that an engineering background is particularly appropriate for management in a technology-oriented society.

Operations research and industrial engineering, one of the specific engineering departments, is particularly appropriate for those anticipating a business management career. The curriculum focuses on the design of integrated, cost-effective systems of people, materials, and equipment for manufacturing industries, public and private service organizations, and consulting firms.

Hotel administration is an undergraduate program that provides managers for the hospitality industry. Capability for management of motels, hotels, condominiums, restaurants, clubs, hospitals, and land and facility development is developed through instruction in personnel and general administration, financial management, food and beverage service, and communications. Students interested in the School of Hotel Administration must have developed an explicit awareness of and commitment to this area through work experience, reading, study, and discussions with industry representatives.

Consumer economics and housing has a particular focus on the economic behavior and welfare of consumers in the private, public, and mixed sectors of the economy, and has an option for special concentration on housing. It aims at the understanding of economics, sociology, and government policy as they apply to consumer problems.

Industrial and labor relations involves the study of the world of work, especially the employee-employer relationship in the broadest sense, including the political, social, and economic forces affecting that relationship. Graduates can pursue immediate employment in industry, government, and labor organizations, or choose graduate study in the ILR field or such related fields as law and business and public administration.

Related Areas

In addition to the major business programs, courses in directly related areas are found in many of the University departments. For example, quantitative methods may be studies in the Departments of Mathematics and Computer Science; courses in public administration are found in the Departments of Government and City and Regional Planning. There are additional special programs that allow students with an interest in business to focus their study on a particular geographic area. Examples are the Latin American Studies Program, the South Asia Program, and the Africana Studies and Research Center. Such interdisciplinary programs as Science, Technology, and Society and the various programs in international agriculture provide additional opportunities for study of interest to business students.

Combined Degree Programs

Because Cornell does have a Graduate School of Business and Public Administration, there exists here a special opportunity for highly qualified undergraduates to combine their undergraduate program with graduate study in that school. Students in such a combined degree program generally receive a bachelor's degree after four years of study and a Master of Business Administration, Master of Public Administration, or Master of Professional Studies (Hospital and Health Services Administration) degree after the fifth year of study, rather than the normal sixth year. Admission to these combined degree programs is limited to particularly promising candidates, and careful planning is required for successful integration of the work of the two degree programs.

Prelaw Study

Law schools do not prescribe any particular prelaw program; nor do they require any specific undergraduate courses as do medical schools. Law touches nearly every phase of human activity and there is practically no subject

that can be considered to be of no value to the lawyer and no undergraduate course of study that can be judged as totally inappropriate. Prelaw students should, however, be guided by certain principles when selecting college courses.

- 1) Pursue personal intellectual interests. Interest encourages scholarship, and students will derive the greatest benefit from those studies that stimulate their interest.
- 2) Attempt to develop precision of thought. Of first importance to the lawyer is the ability to express thoughts clearly and cogently, both in speech and in writing. Courses in the Freshman Seminar Program, required of nearly all Cornell freshmen, are especially designed to develop these skills. English literature and composition and communication arts courses also serve this purpose. Logic and mathematics develop exactness of thought. Also of value are economics, history, government, and sociology, because of their close relation to law and their influence upon its development; ethics, because of its kinship to guiding legal principles; and philosophy, because of the influence of philosophic reasoning upon legal reasoning and jurisprudence. Psychology leads to an understanding of human nature and mental behavior. Some knowledge of the principles of accounting and of the sciences, such as chemistry, physics, biology, and engineering, is recommended and will prove of practical value to the lawyer in general practice in the modern world.
- 3) Study cultural subjects that, though they may have no direct bearing upon law or a legal career, will expand students' interests, help to cultivate a wider appreciation of literature, art, and music, and make better educated and well-rounded persons.
- 4) Consider the special utility of certain subjects to specialized legal careers. For some, a broad scientific background — for example in agriculture, chemistry, physics, or engineering — when coupled with training in law, may furnish particular qualifications necessary for specialized work with the government, counseling certain types of businesses, or for a career as a patent lawyer. A business background may be helpful for those planning to specialize in corporate or tax practice. Students who anticipate practice involving labor law and legislation might consider undergraduate study in the School of Industrial and Labor Relations. But whatever course of study you choose at Cornell, the important tasks are to acquire perspective, social awareness, and a critical cast of mind; to develop the ability to think logically and analytically and to express your thoughts clearly and forcefully. These are the crucial tools for a sound legal education and successful career.

Dual Registration

The presence of the Cornell Law School on campus provides the opportunity for a limited number of highly qualified undergraduates registered in the College of Arts and Sciences at the University to be admitted to the Law School. At the time of entry they must have completed 105 of the 120 credits required for the Bachelor of Arts degree, including 92 credits of courses in the College of Arts and Sciences.

Premedical Study

Medical and dental schools, while not prescribing any particular major course of study, do require that a particular selection of undergraduate courses be completed. These requirements include one year of general chemistry and one year of organic chemistry, one year of biology, and one year of English composition or a Freshman Seminar course. In addition, those premedical students who elect a nonscience major are advised to take at least one advanced biological science course, such as genetics, embryology, histology, or physiology.

There is no "best" major program for those considering medical or dental school, and students are therefore encouraged to pursue their own intellectual interests. Students are more likely to succeed at and benefit from subjects that interest and stimulate them and there is no evidence that medical colleges give special consideration to any particular undergraduate training beyond completion of the required courses. In the past at Cornell, most successful applicants to medical and dental schools have been enrolled primarily in the Colleges of Arts and Sciences and Agriculture and Life Sciences, with some also in the Colleges of Engineering and Human Ecology. The appropriate choice depends to a great extent upon the student's other interests.

Health Careers

Cornell provides guidance and advice for premedical, predental, and other health career students through its Health Careers Program Office. Students are encouraged to contact that office whenever they have determined their interest in a health profession. In addition to general advising, this office also sponsors the Health Careers Advisory Committee, a faculty committee that participates in formulating a composite letter of recommendation for each student who applies to medical or dental schools, supporting his or her applications.

Dual Registration Programs

Qualified students in the Colleges of Agriculture and Life Sciences and Arts and Sciences may apply to a dual registration program arranged between Cornell University and the Upstate College of Medicine at Syracuse. Students from these two colleges and the College of Human Ecology are eligible for a similar program arranged with the Cornell Medical College in New York City. Both programs allow registered students to save one year in pursuit of the bachelor's and M.D. degrees. Further information about these programs is available from the Health Careers Program Office.

Preveterinary Study

There is no specific preveterinary program at Cornell and students interested in veterinary medicine as a career objective should select an area for study that fits their interests while at the same time meeting the entrance requirements for veterinary college listed below. Most prevet students enroll in the College of Agriculture and Life Sciences. However, because of the statutory nature of that division, out-of-state candidates will find it extremely difficult to gain acceptance into the biological sciences or animal sciences program of that college. Others, because

of their secondary interests or desire for a broader undergraduate curriculum, often enter other divisions of the University, especially the College of Arts and Sciences.

The college-level prerequisite courses for admission to the New York State College of Veterinary Medicine at Cornell are: one year each of English, biology, physics, and general chemistry; six credits of organic chemistry; four credits of biochemistry; and three credits of microbiology. All science courses must include a laboratory. The college also requires demonstrated proficiency in written and spoken English and encourages college-level work in mathematics. Experience with the veterinary profession and large and small animals (beyond personally owned animals and pets) is most important. These requirements, necessary for admission to the Cornell College of Veterinary Medicine, may vary slightly among other veterinary colleges.

For information on additional preparation, including work experience and necessary examinations, students should consult the *Announcement of the College of Veterinary Medicine* or the Office of Admissions of the college.

Special Academic Opportunities and Services

Foreign Students

International Student Office

The International Student Office, 200 Barnes Hall (telephone 607/256-5243), serves as an information center and provides arrival assistance, housing information, personal and academic advising and counseling, and generally serves in any way it can international students and campus groups.

Undergraduate Admissions Information

Nonimmigrant students (except Canadians) who attend schools not based on the U.S. system of education must submit a preliminary application and academic documents to the International Student Office to determine whether they meet the University's entrance requirements and standards. Deadlines for the preliminary application are:

Freshmen: December 15 for the fall (September) term and October 1 for the spring (January) term.

Transfers: October 1 for the spring (January) term and February 15 for the fall (September) term.

All nonimmigrant students except Canadians and landed immigrants of Canada must file their application for admission with the International Student Office. Nonimmigrant students studying in schools where the curriculum is based on an American model are not required to submit a preliminary application and may request a final foreign student application from the International Student Office. Deadlines for the final application are:

Freshmen: November 1 for the spring (January) term and January 15 for the fall (September) term. (Only the College of Arts and Sciences will consider admitting freshmen for the spring term.)

Transfers: November 1 for the spring (January) term and March 15 for the fall (September) term. The College of Architecture, Art, and Planning does not consider applications for spring term admission.

Transfer candidates applying for mid-year admission should have completed at least one term of university-level courses at the time of their application. All candidates for spring term admission must already be in the U.S. at the time of their application.

Foreign applicants may be subject to different test requirements from those outlined in the school and college announcements, so every foreign candidate should request a copy of the booklet, *Information for Undergraduate Foreign Applicants*. All questions concerning admission should be directed to the Undergraduate Admissions Section, International Student Office, Cornell University, 200 Barnes Hall, Ithaca, New York 14853, U.S.A. Canadian citizens, landed immigrants of Canada, and persons holding U.S. permanent resident visas should request application forms and information from the Office of Admissions, Cornell University, 410 Thurston Avenue, Ithaca, New York 14853.

Application Fee A fee of \$25 in United States dollars must accompany the final application. Payment should be in the form of an international money order in U.S. dollars, a check, or a draft drawn on a U.S. bank. It is not advisable to send cash. Coupons are not accepted. Students who wish to request a waiver of the application fee must file a financial aid application with the International Student Office by January 15. Fee waivers are not granted solely for reasons of restricted currency exchange.

Interviews and Campus Visits

Applicants are encouraged to plan a visit to the campus, if at all possible. Campus tours are conducted daily. Candidates planning to visit the campus should arrange for interviews with the Assistant Director for Undergraduate Foreign Admissions and with a school or college representative. Interviews are by appointment only and should be arranged at least two weeks in advance. Normally, freshman interviews are not conducted between January 15 and April 15. Only the School of Hotel Administration *requires* an interview of foreign candidates. Applicants interested in hotel administration will receive instructions for arranging the required interview with their final application packet. These interviews may be conducted in almost every major city in the world.

Financial Aid

Eligibility and Availability

Financial aid resources for undergraduate nonimmigrant foreign students are severely limited at Cornell. Consequently, the competition for these awards is keen and only a small percentage of each entering class receives assistance. Students who receive financial aid are likely to be those with exceptional academic records, high test scores, strong potential for positive contributions to the Cornell community, and demonstrated financial need. Awards are generally a combination of scholarship, loan, and on-campus work.

Only freshmen and those transfer candidates who will have completed an associate's degree in the U.S. by the time they enter Cornell are eligible to apply for financial aid. Assistance is not available to students transferring from bachelor's degree programs. If a student does not receive financial aid upon entering Cornell, there is little chance of obtaining aid in the future, except in the event of a financial emergency. Should a student experience an unexpected financial problem after enrolling, he or she should immediately contact the International Student Office for assistance.

Nonimmigrant students who receive financial aid from the University must reapply for aid each year. Application forms are available from the International Student Office. Only Canadians should pick up financial aid applications from the Office of Financial Aid in Day Hall.

Loans and Employment

Short-term emergency loans are available through the International Student Office for students who face unexpected financial crises. Under certain circumstances, long-term loans are also available. Nonimmigrant foreign students are not eligible for SEMP employment, which is administered by the Office of Financial Aid. However, students holding F-1 visas may accept non-work-study employment on campus for up to twenty hours per week. Due to visa restrictions, foreign students may not accept any off-campus employment without permission of the Foreign Student Adviser. Questions regarding permission to work should be referred to the International Student Office. *Note:* Foreign students in the School of Hotel Administration who wish to fulfill their practice credit requirement by working in the U.S. during vacations or the summer should contact Dean Beck's office.

Fees and Expenses

An estimate of expenses for a single student for the nine-month academic year follows. Additional funds are required for support of a spouse and children if they accompany the student. According to immigration regulations, the University must certify that a student has sufficient funds to cover expenses for the entire period of study at Cornell before issuing visa documents. Students who do not fulfill the financial certification requirements are not allowed to register. Estimates of expenses for foreign students are slightly higher than for domestic students.

Estimate of Expenses for Undergraduate Foreign Students Academic Year 1979-80 (September 1- May 30)

	Endowed Units*	Statutory Units†
Estimated Expenses		
Tuition	\$5,256	\$3,668
Books and school supplies	240-390	240-390
Health and accident insurance (12 months)‡	100	100
Living expenses (for a single student this is estimated at \$314-388 per month)	2,824-3,049	2,824-3,049
Room and board (\$2,250-2,475)		
Personal expenses (\$574)		
Intersession (semester break) living expenses	314-338	314-338
Total for continuing students	\$8,734-9,133	\$7,146-7,545
Settling-in expenses for new students	250	250
Total for new students	\$8,984-9,383	\$7,396-7,795

Possible Additional Expenses

Summer living expenses for students remaining in the U.S.	\$ 90 per week
Summer school tuition (attendance is optional)	100 per credit hour plus \$5 per week fees
Married student living expenses (add these estimated expenses to those already given for single students)	185 per month for spouse 85 per month for each child

*The Colleges of Architecture, Art, and Planning; Arts and Sciences; and Engineering; and the School of Hotel Administration.

†The Colleges of Agriculture and Life Sciences; and Human Ecology; and the School of Industrial and Labor Relations.

‡The amount listed for insurance is approximate and may be changed by annual contract negotiations.

since they must provide for their own living and travel expenses during the semester break. No allowance is made for travel within the U.S. or for international travel in the estimate of expenses since these amounts may vary greatly according to the student's needs. Students from overseas will also need extra funds (settling-in allowance) during the first year for the purchase of bedding and warm clothing.

Students and their sponsors should be aware that living expenses and tuition are likely to go up as much as 10 percent each year. There is little chance that a student will receive any financial aid after enrolling to cope with rising expenses, so it is important to plan accordingly for future expenses.

Advanced Standing and Placement Examinations

The University does not award blanket advanced standing credit for any type of foreign secondary school education. All credit is determined individually by subject according to each department's policy. Following are the policies currently in effect for General Certificate of Education (GCE) Advanced (A) level examinations and International Baccalaureate Higher (IBH) Level examinations. Accepted students holding any other type of secondary school credentials are urged to sit for the Advanced Placement examinations of the College Entrance Examination Board or for the department examinations offered during orientation week prior to the beginning of classes each term. Students whose A level or IBH examination grades are not high enough to receive automatic advanced standing credit are also urged to sit for the examinations offered during orientation week. Students requiring further information concerning advanced standing credit for foreign credentials may contact the Assistant Director for Undergraduate Foreign Admissions, 200 Barnes Hall. General Certificate of Education A level examination passes are awarded advanced standing credit. Students must present the original or a certified copy of their examination grade to the departmental representative in order to receive the credit. The following overseas examinations are recognized as equivalent in standard to GCE A levels:

- New South Wales Higher School Certificate (first level passes only)
- Matriculation examination of the University of Hong Kong (advanced level)
- Advanced level examination of the University of Hong Kong
- East African Advanced Certificate of Education (principal passes only)
- West African Higher School Certificate (principal passes only)
- West African advanced level General Certificate of Education
- Joint examination for the higher school certificate and advanced level General Certificate of Education in Malaysia and Singapore (principal passes only)

Following is a list of subjects and the grades for which credit will be awarded.

- Biology*: 8 credits for grades of A or B
- Chemistry*: 8 credits (Chemistry 207–208) for a grade of A; 4 credits (Chemistry 207) for a grade of B

- Economics*: 6 credits (Economics 101–102) for a grade of A
- English literature*: 6 credits for a grade of A; 3 credits for a grade of B
- Geography*: credit subject to review by the Department of Geological Sciences
- History*: 4 credits for grades of A, B, or C
- Mathematics*: 8 credits (Mathematics 111–112) for grades of A or B; 4 credits (Mathematics 111) for a grade of C
- Music*: credit subject to departmental review
- Philosophy*: 3 credits for grades of A or B
- Physics*: 4 credits (Physics 112) for grades of A, B, or C; 4 additional credits (Physics 213) are possible depending upon the advanced standing mathematics credit awarded and an interview with a physics department representative

International Baccalaureate Higher (IBH) level examination passes are awarded advanced standing credit as follows. The original or a certified copy of the examination grade must be shown to a departmental representative in order to receive the credit.

- Anthropology*: credit subject to departmental review
- Biology*: 8 credits for a grade of 7; 6 credits for a grade of 6
- Chemistry*: 8 credits (Chemistry 207–208) for a grade of 7; 4 credits (Chemistry 207) for grades of 5 or 6
- English literature*: 3 credits for a grade of 7
- Economics*: credit subject to departmental review
- Geography*: credit subject to review by the Department of Geological Sciences
- History*: credit subject to departmental review
- Mathematics*: No advanced standing credit is automatically awarded; students must take the advanced standing examination
- Music*: credit subject to departmental review
- Philosophy*: 3 credits for a grade of 7
- Physical science*: 4 credits (Physics 112 or 207) for grades of 6 or 7
- Physics*: 4 credits (Physics 112) for grades of 6 or 7; 4 additional credits (Physics 213) are possible depending upon the advanced standing mathematics credits awarded and an interview with a physics department representative

Transfer Credit

The exact amount of transfer credit to be awarded for courses completed at other institutions is determined only after the student has been accepted for admission. A complete syllabus or course description in English must be submitted for each course or program for which the student wishes to transfer credit. In general, no more than 60 credits are awarded for transfer. All divisions expect transfer students to be in residence at Cornell for at least two years to receive the bachelor's degree. No credit is ever awarded for courses involving study of English as a second language which have been completed at other institutions.

Health Requirement

Foreign students and their dependents must present a chest x-ray taken within twelve months of registration at Cornell, or undergo an X ray upon arrival. Free chest x-ray service is available at the Gannett Clinic. Residents of the following areas are exempt from this chest x-ray requirement: Europe, Japan, Australia, New Zealand, and Canada.

Registration

All entering nonimmigrant foreign students (including Canadians and landed immigrants of Canada) must secure clearance from the International Student Office before registration will be permitted.

Leaves of Absence, Withdrawals, Transfers, Credit Hour Reductions

Any nonimmigrant foreign student planning to take a leave of absence should check first with the International Student Office. Students taking a leave or withdrawing from the University normally cannot legally remain in the U.S. Students graduating or leaving the University should file a Notice of Departure with the International Student Office. Students intending to transfer to other universities should check the immigration regulations regarding transfer in the International Student Office.

Visa regulations also stipulate that students must carry at least 12 credits each term. Foreign students who are petitioning to drop their course load below 12 credits should contact the International Student Office to determine how such a decision will affect their visa status and financial aid.

Minority Education Services

COSEP Program

The Committee on Special Educational Projects (COSEP) Program was founded by Cornell University in 1963. Consistent with the University's mission as a land-grant institution and its founding philosophy, the COSEP Program helps to extend equal opportunity to those minorities who traditionally have been excluded or underrepresented in higher education. The program provides admission opportunities for minority students who wish to enroll in one of the undergraduate units at Cornell University. The office also provides financial assistance to students who apply for financial aid and are admitted. Support services designed to assist students who need help in academic, social, or personal matters are an integral part of the program.

The office seeks to ensure that each applicant admitted is provided with all the services in the degree program the student chooses to complete. It also encourages each student to acquire skills which can be reinvested in the development of his or her professional area. It is anticipated that through a spirit of cooperation and sincerity among all those interested in their education, students in the minority educational affairs program will experience positive and productive changes in their lives while attending Cornell University.

The COSEP central staff is responsible for assessing, developing, and implementing programs that will meet student needs. The COSEP associate staff in each college advises, counsels, and encourages academic achievement in the student's particular field. Academic assistance and services are provided in the form of tutorial and instructional courses through the Learning Skills Center and other services at the University. Technical assistance to various departments is provided in an effort to evaluate and improve the learning skills of minority students. The nonacademic services include work-study, leadership

training, development of organizational skills (with student groups), and assisting students in implementing programs. A general counseling referral service is also provided by the office. Students are strongly encouraged to participate in every aspect of the COSEP program.

Educational Opportunity Program (EOP) Higher Educational Opportunity Program (HEOP)

In 1969 COSEP was expanded by the addition of the New York State EOP (Colleges of Agriculture and Life Sciences and Human Ecology and the School of Industrial and Labor Relations) and HEOP (Colleges of Architecture, Art, and Planning; Arts and Sciences; and Engineering and the School of Hotel Administration) programs. These programs provide those students who would not be admitted through regular admission selection an opportunity to attend Cornell University. Only New York State residents who are both academically and economically disadvantaged are eligible for participation. The State Programs Office is responsible for implementing programs and providing support services for program participants.

Opportunity program students are encouraged to use the services of the Learning Skills Center and the COSEP Program.

The Learning Skills Center

The Learning Skills Center promotes academic scholarships to help ensure graduation of minority students at Cornell. The LSC provides academic advising, preparatory instruction in core courses (biology, physics, English, chemistry, math), and tutorial and study sessions. The LSC has study hall accommodations and provides students access to typewriters, calculators, a reserve library, course notes, previous examinations, and tapes. Academic advising, including help in specific areas of study, scheduling, or programming information is provided by the LSC staff to all minority students. A summer orientation program is offered for incoming COSEP freshman and transfer students. Freshman and upperclass students are urged to take advantage of these services.

The COSEP director is part of the provost's administrative staff, an arrangement that allows for maximum involvement in University-wide academic affairs. The program is decentralized in seven undergraduate colleges where assistant deans, or equivalents, are responsible for college-based minority activities. These college programs and activities are coordinated with the central office.

The COSEP Program admits approximately 270 new students each year and has a retention rate of about 70 percent. Approximately 976 black, Hispanic, Asian, and American Indian students were enrolled in the program for the academic year 1977-78 and nearly 200 students graduated in the spring of 1978.

A *Minority Student Handbook* is available at the COSEP office. For further information contact the Director of COSEP, Darwin Williams, or call 256-3841.

Veterans Education

The Office of the University Registrar, 222 Day Hall, assists students entitled to educational benefits as veterans or as widows or children of deceased or totally disabled veterans. The Office of the University Registrar processes certification of enrollment and attendance to the Veterans Administration so that educational allowances will be paid.

Students entitled to veterans benefits should consult the veterans affairs clerk in the Office of the University Registrar before submitting applications to the Veterans Administration. These students are given the written instructions which set forth requirements to be fulfilled before certification of enrollment can be made to the Veterans Administration and other information of general interest.

Summer Session

Cornell Summer Session provides some unique and unusually attractive opportunities for study and recreation for students who range in age from the high school senior to the senior citizen. With Ithaca weather at its best, summer study makes available the extensive academic and recreational facilities of the University and the Finger Lakes Region. Students may choose from a wide spectrum of courses which are scheduled during three-week, six-week, and eight-week sessions, as well as dozens of special programs of varied lengths. Admission is kept relatively open and simple. Classes meet daily, and because they are usually small, a close association between student and teacher is facilitated.

For more information consult the Division of Summer Session, 105 Day Hall, or call 256-4987.

Extramural Courses

The Division of Extramural Courses makes it possible for persons living within commuting distance of the University to take one or two courses a term in areas of their own interest. Persons may register for practically any course in the University for which they have the necessary prerequisites provided space is available after all degree candidates have been registered, and they obtain written permission from the instructor. Permission must be obtained in advance of registration on a form provided by the extramural division. Registration is normally limited to 8 credit hours. Tuition is at the rate of \$125 per credit hour for 1979-80, which does not include fees for services available only to full-time Cornell students. Courses taken through the Division of Extramural Courses carry regular Cornell University credit that may be used for certification for employment and in meeting requirements for academic degrees. The division also offers an Official Visitor's Program that allows persons to attend classes in many divisions of the University on a space available basis at a charge of \$10 per credit hour. Visitors are required to obtain written permission of the instructor and may enroll only on a space available basis. In this program no credit is given and no record is kept of attendance or performance. For more specific information about both programs contact the extramural office in 105 Day Hall.

Continuing Education

The Continuing Education Information Center at Cornell University provides information, counseling, and referral to men and women who have been out of school for several years and want to resume their education. Anyone who wants to take courses, begin an undergraduate or graduate degree program, or complete an unfinished degree, is welcome to use the services of the center.

The center provides information on all schools and departments of the University; opportunities for part-time and full-time study; special courses, workshops, and seminars; and community resources available to older students. A small library includes information on continuing education research, adult learning and development, educational opportunities at local institutions of higher learning, and financial aid, work-study programs, and admissions procedures.

In addition the center provides individual and group counseling; sponsors an older student organization, Older, Wiser Learners (OWLS); and conducts workshops of special interest to mature students.

The Continuing Education Information Center is located in the Dean of Students Office, 103 Barnes Hall, and its services are free. For more information contact the director, Vivian Geller (telephone 256-4221).

Information Services

The Information and Referral Center assists students, faculty, staff, and visitors by distributing free literature, answering questions, and giving directions. The center responds to questions over the telephone, in the mail, and on a walk-in basis. Questions to which answers are not readily available will be researched by the center staff. The center's aim is to minimize confusion and help people avoid the necessity of contacting several offices with their questions. The center is in Day Hall near the East Avenue entrance and is open Monday through Saturday from 9 a.m. to 5 p.m. The telephone number is 607/256-6200.

Campus tours originate from the Information and Referral Center Monday through Friday at 11:15 a.m., and 1:30 p.m., Saturday at 11:15 a.m., and Sunday at 1 p.m. From November 1 through March 31 the weekday tours are given at 1:30 p.m. only.

In Willard Straight Hall there is an information desk known as the Straight Desk. It differs from the Information and Referral Center in that it does not have a library of free literature and does not conduct tours. It does, however, sell snacks, magazines, and newspapers. The Straight Desk is open from 8 a.m. to 10 p.m. Monday through Friday, 9 a.m. to 10 p.m. on Saturdays, and 10 a.m. to 9 p.m. on Sundays. The telephone number is 607/256-3450.

Handicapped Services

As a university committed to the principle of equal opportunity, Cornell's academic and social resources must be fully available to all who are qualified, including persons with impairment of sight, hearing, mobility, or muscular coordination.

Significant steps toward making its facilities and services accessible to the handicapped are being taken by Cornell. Classes, library services, dining facilities, student residences, guest lectures, and employment opportunities are some of the settings and activities for which accessibility must be assured. Since Cornell desires to provide access in as integrated and natural a setting as possible, the emphasis is on bringing the student to the class rather than on bringing the class to the student. A campus-wide program to provide ramps, curb cuts, and remodeled restroom facilities where needed is underway. Special parking permits for the handicapped have been issued, and arrangements for accessible accommodations in residence hall facilities have been made for individual students.

Ruth W. Darling, Office of Equal Opportunity, 217 Day Hall (256-5298), is the campus coordinator for matters concerning the handicapped. If you have any questions, you are urged to get in touch with her for discussion and, where appropriate, referral to the proper resource person.

Sandra Stein, assistant dean of students in 103 Barnes Hall (256-3608), is serving as the resource coordinator for handicapped students. Each school within Cornell University has designated a representative to assist handicapped students with such matters of academic concern as course scheduling, classroom changes, and special provisions for taking examinations. Their names are listed in a brochure for handicapped students which may be obtained from the Office of the Dean of Students, 103 Barnes Hall.

Judicial System

The judicial administrator's office receives and investigates complaints brought by students, other members of the University, and offices on campus involving alleged violations of the Campus Code of Conduct or the Statement of Student Rights. The judicial administrator may also initiate investigations. If there is reasonable cause to believe that a violation has occurred, the judicial administrator files charges and reminds the defendant of the services of the judicial advisor. Personal details of complaints and judicial actions are considered qualified privileged information.

Many judicial cases are resolved by summary decision. In such decisions the judicial administrator proposes a fine or a remedy, or both, which the parties to the case choose to accept. Either the defendant or the judicial administrator may, however, decide instead to take the case to a formal hearing. A complainant who is dissatisfied with the judicial administrator's action in a complaint may appeal that action to the University Hearing Board, which then decides whether or not to refer the case to an adjudicatory hearing.

Judicial procedures and penalties, like the campus code, are legislated through the Campus Council. Questions about the judicial system should be directed to the Office of the Judicial Administrator, 431 Day Hall (256-4680); hours are 9:00 a.m. – 4:30 p.m., Monday through Friday. The *Policy Notebook for Students, Faculty and Staff*, available from the Office of the Dean of Students, details the principles and policies governing campus conduct. For further information consult the staff in the Office of the Dean of Students, 103 Barnes Hall.

A judicial advisor is available, without charge, to provide legal counseling and legal assistance to those accused of violating University rules and regulations, including academic integrity violations. The Office of the Judicial Advisor is not associated with the Cornell Legal Aid Clinic and is not equipped to handle legal problems arising outside the University context. The Office of the Judicial Advisor is located in B19 Day Hall, 256-6492. The hours of this office change each semester and are posted on the office door, along with telephone numbers where an advisor can be reached when the office is not open. Further information about the Office of the Judicial Advisor can be obtained from the Office of the Judicial Administrator.

The Legal Aid Clinic, located in 424 Hughes Hall, provides legal service in civil cases for residents of Tompkins County who cannot afford a lawyer. The clinic deals primarily with four types of cases: landlord/tenant disagreements, consumer and welfare problems, and family matters. Call 256-4196 for further details.

Ombudsman

The University Ombudsman's Office in 201 Barnes Hall, telephone 256-4321, hears and investigates complaints about the operation of the University, especially complaints of injustice and abuse of power. The office is independent of the University administration and all other groups on the campus; it reports only to the community. Any member of the Cornell community may make a complaint to the ombudsman's office and seek its assistance.

The function of the office does not take the place of existing grievance procedures but nonetheless stands ready to hear and investigate complaints at any time. The office does not have power to change or reverse decisions or to punish anyone. Its main purpose is the just and equitable resolution of conflicts in the University. In addition to hearing and investigating complaints, it may also investigate problems on its own initiative and report its findings and recommendations to appropriate people in the University.

Academic Support Services

The following section is intended to inform students of special support services available to help them achieve success in their academic careers. They are frequently of enormous help in solving special academic problems and students should not hesitate to make use of these services.

Academic Resources Center (ARC)

The Academic Resources Center (ARC), located in the lobby of Uris Library, is an information and referral center for academic support services and materials at Cornell. The center's files cover three areas: guidance and tutorial services, audiovisual equipment, and special libraries and collections.

Information on guidance and tutorial services includes lists of typists, tutors, translators, and editors as well as details on many academic services on campus.

The Academic Resources Center maintains an extensive file on the locations and availability of audiovisual equipment. Professors, students, or staff who need equipment for academic activities may call ARC and ask

the center to make arrangements for an equipment loan or rental. Audiovisual requests should be made several days in advance.

ARC has also gathered information on many of the small specialized libraries and collections at Cornell. Some of these collections contain books and journals while others consist of specimens.

If an immediate response to an inquiry is not possible, ARC will contact sources throughout the University and Ithaca in order to satisfy the request.

The center is open Monday to Friday from 9 a.m. to 4 p.m. Call ARC at 256-4199 or visit the ARC desk in the lobby of Uris Library.

Career Center

The Career Center, located at 14 East Avenue across from Statler Hall, is part of the University counseling and advising network. The center, working in cooperation with the college offices, assists all Cornellians, from first-year students to alumni. Its purpose is threefold: to help people organize personal resources in career planning and job hunting, to advise on graduate and professional study, and to offer access to current job markets. It provides information and advice on summer jobs, volunteer activities, internships, overseas study, travel, graduate and professional schools, fellowships for graduate study, minority opportunities, résumé writing, and job-hunting techniques.

The center's facilities, programs, and activities include the following:

A Library of over 15,000 items, one of the most extensive career libraries in the country, including information about job-hunting techniques, graduate study, summer and other short-term employment, and career opportunities. Two information specialists assist students in the use of this material.

"The Career Center News," a section that appears weekly in the *Cornell Daily Sun*, informs the campus of job interviews, application deadlines, and career programs.

Programs include speakers, panel discussions, and other events on such subjects as job hunting, graduate school admissions, fellowships and scholarships, and study and job opportunities abroad.

Employment Interviews and Job Placement During October and November and again in February and March the Career Center, along with the schools and colleges, provides up to thirty interviewing rooms a day for the hundreds of employers who come to the campus each year to talk with Cornell graduates. The diversity of the University and the quality of the students bring most of the major employers of college graduates to the campus.

Placement Bulletins In addition to bulletins listing jobs, the center publishes and distributes to 3,000 employers a bimonthly bulletin listing the qualifications of students and alumni seeking employment.

Graduate School Recruiting Cornell students are heavily recruited by graduate schools. The Career Center arranges interviews with admissions directors from various graduate institutions, including the major law and graduate business schools.

Advising and Instruction Instruction is provided on job-hunting techniques and career planning through programs that include résumé critiques and a self-assessment workshop. The staff also advises students on individual problems related to graduate school admissions and fellowships.

Tests Current bulletins and applications for the Law School Admission Test, the Graduate Record Examination, civil service examinations, dental and medical school admissions tests, and other examinations are available at the center.

Opportunities in Education Teachers and educational administrators may arrange to have dossiers of personal information and recommendations filed with the Educational Placement Office in the Center. For two dollars a set, copies can be sent to prospective employers upon request of either the candidate or the employer.

Minority Programs In cooperation with the Minorities Undergraduate Law Society, the Minority Business Students' Association, the Black Agriculturists, and other minority organizations, the center offers programs on many topics. Representatives from business, industry, government, school systems, and graduate and professional schools who are recruiting minority students make frequent visits to campus. The minorities' adviser at the center keeps students informed about specific careers in business and science in which minorities are currently underrepresented.

Volunteer Opportunities Volunteers can work on campus, in Ithaca, and around the world, with VISTA, in summer camps for disabled children or adults, in work-project camps the world over, with church groups, or in summer schools for the disadvantaged. Such experience is often good background for teaching, social work, and the health professions. Some of these opportunities offer small remuneration, some provide room and board; others may actually require payment.

Internships A growing number of students obtain valuable career orientation and practical experience through internships. Many have found summer internships through the Cornell Internship Program (CIP), a student organization that works in cooperation with the Career Center, locating internships in business, government, and nonprofit organizations.

Health Careers

Advice and guidance are provided to students seeking careers in medicine, dentistry, and other health professions. The Career Center also coordinates the efforts of the Health Careers Evaluation Committee, a faculty committee that participates in formulating a composite letter of recommendation for each student who applies to medical or dental school.

Guidance and Testing Center

This center, located at 203 Barnes Hall, offers counseling to Cornell students who desire help in defining their academic or vocational objectives and aids students in adjusting to the academic environment of the University. After a free initial interview to provide the counselor with relevant background information to help define the nature of the student's problem, the student may be encouraged to take a series of tests (aptitude, interest, personality, and

achievement). The fee for this battery of tests is \$30. The student will return in order to have the test results interpreted in follow-up counseling sessions. All counseling and test results are kept strictly confidential. Appointments should be made in advance, Monday through Friday between 8:00 a.m. and 4:30 p.m. by calling 256-5044.

Interfraternity Council Tutoring Services

The Interfraternity Council provides tutors without fee to any student who needs help with a course. Tutors skilled in mathematics, chemistry, physics, biology, computer science, statistics, and other subjects are available. Special sessions are planned this year for chemistry and mathematics. For more information call 256-5183 or stop in the council office at 17 Willard Straight Hall.

The Learning Skills Center

See "Minority Education Programs."

Office of Learning and Teaching Services

This office coordinates learning and teaching service activities across the University, collects and disseminates information on teaching improvement, and facilitates teaching innovation. Areas of concern include learning skills and tutor services. The Office of Learning and Teaching Services is located in 375 Olin Hall, telephone 256-3413.

Reading and Study Skills Center

A part of the Office of Learning and Teaching Services, this center offers courses in speed reading and a variety of study skills. Special emphasis is placed on how to read texts, budget time, and prepare for examinations. In addition to the minicourses, audio cassettes on these topics are maintained at the center, in the Listening Room of Uris Library, the Reserve Desk of Mann Library, Room C111 of the College of Veterinary Medicine, and at the three student unions.

The Writing Workshop

The Writing Workshop, in 302 Rockefeller Hall (telephone 256-6349), offers a range of services for students seeking help with writing.

Tutorials For those who need an intensive course in composition the Workshop offers tutorial classes. Students enroll in either English 137 (offered in the fall semester) or English 138 (spring) and attend one small class session of five to six students and one individual tutorial per week. These courses satisfy the Freshman Seminar requirement and are offered for S-U credit. To register for these courses and arrange class times, call 256-6349 for an appointment to consult a member of the staff.

Walk-In Center Any student writing a paper may use the Workshop's Walk-In Center, 302 Rockefeller Hall, for help with specific problems encountered as the paper is being drafted. The staff will discuss the strengths and weaknesses of any draft on which a student is currently working. Hours are posted outside the Workshop's door, in the English department's offices, at the Uris Library reference desk, and at other locations on campus. Appointments are not made; students are assisted on a first-come — first-served basis. For more information telephone 256-6349.

Freshman Writing Assessment Sessions For entering freshmen the workshop, in conjunction with the Freshman Seminar Program, offers Writing Assessment Sessions during orientation week. These sessions help students assess their writing abilities and choose an appropriate Freshman Seminar. Consult the orientation brochure for dates, times, and locations.

Term Paper Clinics For students working on research papers the Writing Workshop, together with the reference divisions of Uris and Mann Libraries, holds term paper clinics during the second half of each semester. The clinics consist of a two hour mini course on researching and writing term papers; one hour is devoted to an introduction to using library resources and the other to strategies for writing, revising, and documenting papers. For more information and for dates, times, and locations of these courses call either library's reference desk or the Writing Workshop (256-6349).

Student writers may find *A Writer's Responsibilities*, prepared by the Department of English and distributed through the Office of the Dean of the Faculty, 315 Day Hall (telephone 256-4843), useful. The booklet shows how to document source material to avoid inadvertent plagiarism.

Computer Services

Computer services, including basic consulting assistance, are available at public terminals in Baker, Ives, Riley-Robb, Upson, Uris, and Warren Halls. The terminals at Uris and Warren Halls are additionally staffed to provide professional assistance in physical science applications, instructional computing, statistical computing, small computer support, acquisition of computer terminals, and general use of the central computing facilities. These include a large general purpose computer, network access to off-campus facilities, and a cluster of personal computers.

Duplicating Services

Photocopying services are available in any of the seven copy centers on campus. Copies cost a standard rate of 6¢ per page (7¢ per page if rag bond paper is used). Each center also has offset press facilities to produce multiple copies. The cost of offset copies depends on the number of copies of each page to be made (for example, ten copies of a page will be 50¢; one hundred copies of a page will be \$1.63). In addition, self-service copying machines are available across campus, particularly in the libraries and the campus store. Many departments have copy machines or access to machines and some of these may be available to students on a limited basis.

Copy Centers	Telephone
G04 Bradfield Hall	256-7612
B15 Day Hall (Photo Services)	256-4181
B59 Day Hall	256-2326
101 Myron Taylor Hall	256-7164
21 Plant Science Building	256-3134
Print Shop, 695 Dryden Road	256-4354
G40 Uris Hall	256-6409

University Libraries

The Cornell University library system ranks in the top ten among major academic libraries in the United States. The system's eighteen libraries contain well over four million volumes and currently subscribe to fifty-one thousand periodicals. Together they provide the facilities for research and study in hundreds of undergraduate major subject areas and in over eighty-five fields of study for advanced degrees.

The central library, at the south end of the Arts Quadrangle, is composed of two parts. Uris Library, the building with the tower that has become the symbol of Cornell, is essentially an undergraduate library for students in the liberal arts. A principal aim of this library is to bring readers and books as close together as possible. Accordingly, the stacks containing more than 115,000 volumes are open to all, and only reserve books in heavy demand are held in a special category. There are listening rooms where students, singly or in groups, may hear recordings of the spoken word, and there is a lecture room with sound and projection capabilities.

Across the walk from Uris is the John M. Olin Library, devoted more specifically to graduate and faculty research. This closed-stack library houses many special collections of books and manuscripts, among them rare books, a collection on East and Southeast Asia, an Icelandic collection, History of Science collections, the archives of the University, maps, and newspapers.

The two libraries, Uris and Olin, complement each other in support of the University's program of teaching and scholarship. In addition to these facilities, there is an extensive system of college and school libraries. Chief among these is the Albert R. Mann Library, serving the Colleges of Agriculture and Life Sciences and Human Ecology, and located at the east end of the Agriculture Quadrangle. Mann Library, containing over 450,000 volumes, primarily in open stacks, serves not only the needs of students in those two colleges, but also houses the complete research library of the Division of Biological Sciences. Other college libraries include the Fine Arts Library, serving the College of Architecture, Art, and Planning; the libraries of the College of Engineering and the New York State College of Veterinary Medicine; and the libraries serving the Graduate School of Business and Public Administration, the Law School, the School of Hotel Administration, and the New York State School of Industrial and Labor Relations. In addition there are many large department libraries located throughout the campus. For more specific information, see the *Handbook of the Libraries* available at all libraries.

All of the libraries are open long hours, some of them until midnight. Many have special copying services, audiovisual facilities, bibliographic retrieval services, study rooms, microfilm and microfiche readers, typewriters, interlibrary loan services, and some publish handbooks and bibliographies that are distributed without charge. The library issues directories of locations by subject, hours, and services which are available in all the libraries. Schedules for vacation periods, intersession, and summer session are always posted or available at the separate libraries.

University Health Services

The University Health Services provides comprehensive medical care for all full-time undergraduate and graduate students enrolled at Cornell University in Ithaca. Gannett Medical Clinic, the outpatient unit, at 10 Central Avenue is open Monday through Friday from 8:30 a.m. to 5:00 p.m. and Saturday from 8:30 a.m. to 12:30 p.m. Sage Infirmary is open twenty-four hours a day during the school year and is available for infirmary care and emergency outpatient service after clinic hours. The entrance to Sage is on East Seneca Street between Stewart Avenue and Schuyler Place.

The clinic and infirmary medical staff, under the supervision of the clinical director, consists of attending physicians and health associates from the University staff and consulting physicians and surgeons from Ithaca and vicinity. All medical records are strictly confidential.

For a medical appointment a student should call 256-4082 or go to the clinic. For an appointment at the Mental Health Section a student should call 256-5208 or go to the offices at the clinic. A doctor is available for emergencies twenty-four hours a day. During clinic hours call 256-5155; after clinic hours call Sage Infirmary at 272-6962 or 272-6963.

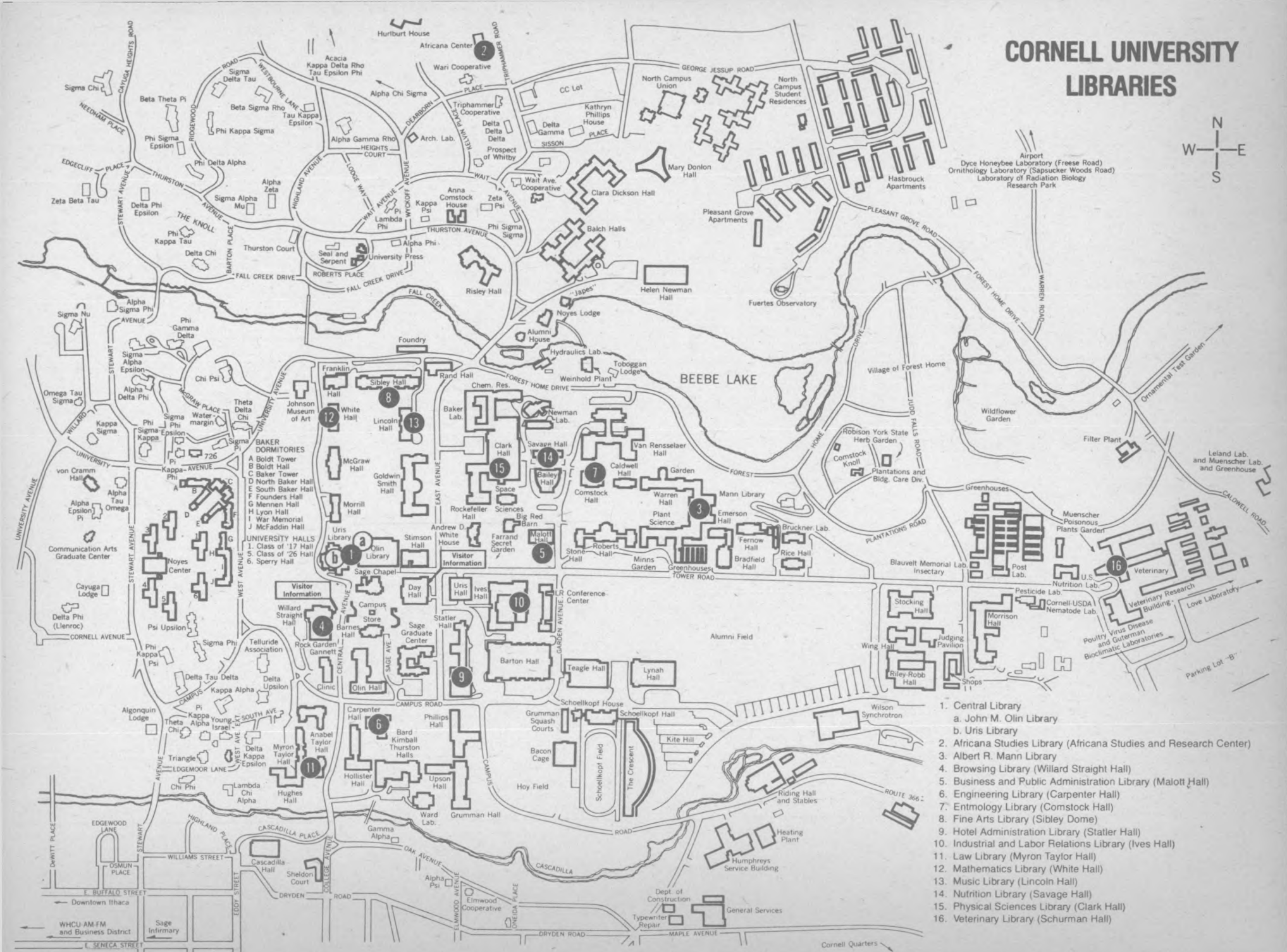
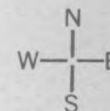
The tuition charge covers the cost of the following services for the academic year:

- 1) unlimited visits to Gannett Medical Clinic,
- 2) up to fourteen days of infirmary care each semester in Sage Infirmary,
- 3) routine diagnostic and x-ray examinations as ordered by Health Service physicians, and performed by Health Services staff,
- 4) physiotherapy services,
- 5) counseling services at the clinic and in the Mental Health Section.

Expenses not covered by the University Health Services program are: visits to private physicians or private health care facilities; house calls; hospitalization expenses except in Sage Infirmary; hospital charges and fees for surgical procedures; fees for eye examinations for glasses; allergy injections; immunization vaccines and inoculations for travel abroad; physical exams for studies elsewhere or for fellowship applications; routine expenses for contraceptive, prenatal, or obstetrical care; and expenses connected with illness or injury occurring a) outside of Ithaca while in transit to and from college, on weekend trips, and on vacations away from Ithaca during the academic year; and b) during the summer unless enrolled as a summer student.

Students are automatically enrolled in a supplementary Accident and Health Insurance Plan, underwritten by Mutual of Omaha, which pays for many of the services not provided without charge by the University Health Services and includes a \$20,000 major medical provision. The plan covers hospital care, charges for surgical procedures, care at Sage Infirmary in excess of fourteen days, consultations with a private physician or specialist if referred by a Health Services physician, expenses connected with illness or injury outside of Ithaca, and limited reimbursement for allergy injections, prescription drugs, and most outpatient

CORNELL UNIVERSITY LIBRARIES



1. Central Library
 - a. John M. Olin Library
 - b. Uris Library
2. Africana Studies Library (Africana Studies and Research Center)
3. Albert R. Mann Library
4. Browsing Library (Willard Straight Hall)
5. Business and Public Administration Library (Malott Hall)
6. Engineering Library (Carpenter Hall)
7. Entomology Library (Comstock Hall)
8. Fine Arts Library (Sibley Dome)
9. Hotel Administration Library (Statler Hall)
10. Industrial and Labor Relations Library (Ives Hall)
11. Law Library (Myron Taylor Hall)
12. Mathematics Library (White Hall)
13. Music Library (Lincoln Hall)
14. Nutrition Library (Savage Hall)
15. Physical Sciences Library (Clark Hall)
16. Veterinary Library (Schurman Hall)

services. Students are covered by this plan for the entire twelve months. Only by filling out a yearly waiver form, which is mailed with the first bursar's bill or available at Gannett Medical Clinic, the Bursar's Office at 260 Day Hall, and at University registration, will students *not* be covered and charged for this plan. The cost of this supplemental plan for 1979-80 will be approximately \$95 for the entire twelve months and the charge will appear on each student's fall tuition bill. Unless students have other health insurance to supplement medical services provided by the University Health Services, they are strongly urged to take advantage of this plan. After the waiver process has been completed, a student may be reinstated if the parent's insurance plan drops students at a certain age or if the student's marital status changes.

Student spouses and children may be voluntarily enrolled in the supplementary Accident and Health Insurance Plan for an annual premium. Information concerning this insurance may be obtained at Gannett Clinic or by telephoning 256-6363 or 257-2252.

The Basic Medical Services Program (BMSP) provides students' spouses with benefits identical to the student health care program on a prepaid or fee-for-service basis. This plan is not to be confused with the supplementary Accident and Health Insurance Plan. Information and forms for the Basic Medical Services Program may be obtained by writing or visiting the University Health Services, Gannett Medical Clinic, Cornell University, 10 Central Avenue, Ithaca, New York 14853.

Campus Life

Office of the Dean of Students

The Office of the Dean of Students (ODS), located in 103 Barnes Hall, is concerned with student life at Cornell. The office and staff provide a variety of resources for all undergraduate and graduate students. In addition to serving as a general information center, the ODS responsibilities include counseling, new student orientation, student organizations, and residence life.

Programming and counseling for handicapped students, veterans, and married students; professional seminars for counselors and advisers; and the training and management of the Empathy, Assistance, and Referral Service (EARS) are performed by the counseling arm of ODS.

The office advises fraternities and sororities and the undergraduate and graduate student finance commissions. It aids in the development and administration of student activities and organizations and leadership conferences. All

major campus events are scheduled through the Organizations and Activities Review Committee (OARC) based in this office.

Students may express an interest in specific organizations by filling out the Student Organizations Contact Sheet (SOCS) during registration each semester. ODS then distributes the names of interested students to Cornell's 450 organizations and keeps these sheets on file for use by registered organizations.

Programs for new students, especially those scheduled during Orientation Week, are coordinated with the schools and colleges, unions, residence halls, and other University divisions. During the year the office coordinates and plans sex education and alcohol and drug education programs for students.

ODS oversees residence life, including the development and coordination of policy and programs for the residence halls, small units, and cooperatives. The ODS staff also are involved in off-campus housing advice, room assignment policy for on-campus housing, room changes, contract terminations, resident staff selection and training, married and graduate student housing, and other housing operations and services.

Numerous publications originate from the ODS, including the Cornell calendar; the *Student Organizations Directory*; the *Policy Notebook for Students, Faculty and Staff*; and *Off-Campus Housing in the Ithaca Area*. Students are invited to drop in or call the staff at 256-4221 with questions or concerns.

Housing

There is sufficient variety among University residences to meet the needs and desires of most individuals. Each year, however, more students than the Department of Residence Life can accommodate want to live on campus. Acceptance to the University does not automatically guarantee a room in a residence hall, but all freshmen who apply for accommodations in residence halls are assured of an assignment their first year although late applications may be placed in a temporary assignment at the start of the year.

Room accommodations range in price approximately from \$765 to \$1,600 for the academic year 1979-80. For specific rates by living unit, see the booklet, *Living on Campus, Housing for Single Students 1979-80*, available from the Department of Residence Life. Students who want to secure a room should return the housing application card with a \$25 nonrefundable application fee as soon as they receive notification of acceptance. Room assignments are made in chronological order according to the date the Housing Assignment Office receives the application. If an application is received after all regular spaces have been assigned, a student may be offered a temporary assignment in a residence hall lounge that has been converted for occupancy until a regular assignment can be made.

A *limited* amount of space is reserved for transfer students. Physically handicapped students needing special housing arrangements should contact the associate director of residence life at Department of Residence Life (607/256-7592) and efforts will be made to provide a room that meets verified medical needs. All registered full-time

students are eligible to live in University residence halls. There is no discrimination with respect to race, color, creed, religion, national or ethnic origin, sex, age or handicap in any of the room assignment procedures or in the operation of the residence halls.

Room assignments are sent out in early July along with the leases, which must be signed and returned to the Housing Assignment Office within fifteen days of the day of receipt. The lease is a legal document, binding for the academic year. A \$100 security deposit payable to Cornell University must accompany the lease. This security deposit serves as a damage deposit, refundable upon fulfillment of the contract if no damage has occurred. Leases unaccompanied by a security deposit are not accepted.

All rooms are equipped with beds, mattresses, bed pads, desks, study chairs, study lamps, chests of drawers, mirrors, wastebaskets, and draperies, venetian blinds, or window shades. Each room or suite in the large residence halls is equipped with a telephone with the cost of the service and local calls included in the rent.

The Department of Residence Life provides optional linen service for students living in the University residences. The charge for the academic year is \$34 for two sheets, two towels, and one pillowcase a week; \$26 for two sheets and one pillowcase a week; a blanket, pillow, and bedspread may be rented for \$11.

Personal property is not insured by the University nor is the University liable for loss or damage to any article of personal property. Students are encouraged to take out personal property insurance on their belongings. Information on personal property insurance is available at the Office of the Dean of Students in 103 Barnes Hall.

If a student withdraws from the University before the end of the academic year, a portion of the housing charge is refunded. For specific details read the refund policies in the housing lease.

The Off-Campus Housing Office in 223 Day Hall maintains lists of accommodations that have been voluntarily submitted by local landlords. These lists are constantly changing and must be seen in the Housing Office. For more information, the booklet *Off-Campus Housing in the Ithaca Area* may be obtained from the above office.

Information concerning University apartments for student families is in the booklet, *Family Housing*, available from the Department of Residence Life, Cornell University, Building B-40, Hasbrouck Apartments, Ithaca, New York 14850.

Dining Services

Nationally recognized as one of the nation's leading University food service organizations, Cornell Dining provides diverse food service programs for the entire Cornell community.

Co-op Dining

Co-op Dining is a completely voluntary dining plan serving more than half Cornell's undergraduates as well as many graduate students and other qualified members of the Cornell community. Most students living on campus find one of the meal options convenient for their personal needs. However, Co-op Dining membership is not limited to these students; any student may join.

Members are allowed to eat without limits to selection or quantity. The cost of each meal-plan option is set at the beginning of each academic year and is automatically billed on a semester basis. Co-op rates do not increase during the academic year and members do not pay New York State sales tax, which is 7 percent.

Co-op Dining offers eight nutritional meal-plan options. These options have a variety of time and meal periods on a five- or seven-day basis. Members are not penalized for switching meal plans to better meet their individual academic routines. Maximum flexibility is included with a two-meal-a-day plan that offers a choice of breakfast or lunch, and dinner daily.

Members eat in convenient dining rooms, located in the residential areas or on the central campus, and are free to select the dining rooms of their choice for each meal. All dining rooms serve a variety of entrees (including one vegetarian entree at both lunch and dinner) each day. In addition, weekly "prime nights" and specials highlight the Co-op Dining Program. Specials may include outdoor barbecues, midnight breakfasts, ice cream sprees, or the Cross Country Gourmet dinner series that has won national acclaim. Menus are posted weekly and additional information is available through a special menu information telephone line, 256-DINE.

Balch Dining Co-op meals served in the Balch Dining Room offer all members the opportunity to dine in beautifully appointed rooms. The menu features lean meats, poultry, fresh fruits, and vegetables and is conducive to sensible dining. This dining unit is supervised by a dietician who is available to all Co-op members for nutritional counseling or advice (telephone 256-5538).

The Co-op Dining program is administered by Cornell Dining, 233 Day Hall (telephone 256-5392). Each year, all new and transfer students receive a program description and contract. All terms and conditions of the Co-op Dining program are given in the contract, which should be read carefully by all prospective members before completing and mailing the application.

Other Dining Services

Dining at Cornell is not limited to the Co-op Dining program. Students who do not choose to join a dining plan, University faculty and staff members, and visitors may choose from a variety of dining rooms on campus. Each dining room has its own atmosphere and menu. Most dining units serve cafeteria style. However, the institution of a scramble system allows customers to move to any one of the various food and beverage counters rather than standing in conventional cafeteria lines.

Cash a la Carte Service is available at three Cornell Dining locations seven days a week, throughout each day. All cash dining units accept cash, Cornellcard, Mastercharge, and VISA cards. Dining service at each unit follows the posted hours of operation but may be limited during the summer session and University recesses such as Thanksgiving, Christmas, intersession, and spring break.

Guest Tickets Four units offer for purchase an unlimited guest ticket for food service in Co-op Dining areas. The purchaser of an unlimited guest ticket is able to enjoy Co-op Dining service on a per meal basis but must adhere to the terms and conditions of Co-op Dining contract while dining in Co-op areas.

Scrip In the fall of 1979, a new point-system cash-purchase plan will be available to guests and members of the Cornell community. It will offer convenient nontaxable scrip booklets; the scrip may be used instead of cash at all Cornell Dining outlets and dining rooms.

The Pancake House is one of the first specialty restaurants to be located on a university campus. Offering counter or booth table service and take-out orders, it is located in Noyes Lodge, overlooking Beebe Lake (telephone 256-5314).

Grocery Stores and Vending Services

The Pick-Up offers a variety of grocery items, beverages, magazines, and personal items. A convenient check-cashing service and a small game room are also provided. The Pick-Up is located on the lower level of Noyes Lodge (telephone 256-5314).

The Mini Pick-Up, located on the first floor of Noyes Center, also provides a variety of food and beverage items for students who live on West Campus (telephone 256-5320).

Vending Operations provide food, beverage, and snack items in many campus buildings (telephone 256-5385).

Catering

Cornell Catering serves the entire Cornell community either in its private dining rooms, located on the third floor of North Campus Union, or at functions held in many campus locations. Cornell Catering offers food service for a variety of occasions or needs (telephone 256-5555).

Student Employment

Cornell Dining is the leading on-campus student employer and has more than 700 positions available in many areas of food service. Cornell Dining's student employee organization is unique in its operation and administration of all aspects of student employment. The student organization provides interested and capable student employees opportunities for promotion and increased earnings as well as merit raise evaluations at the end of each semester. Student employees who meet minimum work and time requirements are eligible for a 22 percent student discount on Co-op membership and other specified food service programs.

University Unions

The Department of University Unions at Cornell has jurisdiction over the three union buildings which serve as centers of activity for Cornell students. These are Willard Straight Hall, the largest, oldest, and most centrally located; Noyes Center, located in the West Campus residential area; and North Campus Union, in the North Campus residential complex. A partial list of available union facilities includes dining areas, a browsing library, a theater, billiard and game rooms, study lounges, meeting rooms, a pottery shop, and darkrooms. Among the many special services available to students are a central ticket office, a rental service for audiovisual equipment and phonograph records, a dry-cleaning service, service desks where newspapers, magazines, and sundries are sold, a travel office, an art-lending library, and a check-cashing service for checks up to \$25.

The unions are a major employer of students on campus and also enlist student volunteers on their boards and program committees. The union boards plan a wide variety of social, cultural, recreational, and educational activities and membership on any board is open to all members of the Cornell community.

University Unions also sponsors Cornell Cinema's films, the Cornell Concert Commission's popular concerts, University Unions Program Board's various productions, the Third World Student Programming Board, and Wilderness Reflections.

Union Hours

Willard Straight Hall	7:00 a.m. – 11:00 p.m., 7 days a week
Noyes Center	10:00 a.m. – 12:30 a.m., Sun. – Thurs. 10:00 a.m. – 1:30 a.m., Fri. and Sat. (Building opens for dining earlier)
North Campus Union	7:00 a.m. – midnight, Sun. – Tues. 7:00 a.m. – 1:00 a.m., Wed. – Sat.

Campus Council

The Campus Council is the University-wide body that conducts hearings and discussions of campus issues, examines matters concerning the interest and welfare of members of the University, oversees the judicial system, and maintains a system of committees involved in areas of nonacademic University affairs. This system of committees and boards of the Campus Council provides for participation in decision making by students, faculty, and other University employees. Committee and board meetings are open to the public. General information about the Campus Council may be obtained at its office, 133 Day Hall.

Cornell United Religious Work

Cornell United Religious Work (CURW) coordinates religious affairs at Cornell. Participants in CURW may be involved in denominational, interreligious, or nondenominational activities. The denominational programs include daily or weekly opportunities for worship, study, and interaction. CURW member groups share in support and leadership of interreligious programs, such as the Sage Chapel convocations, CIVITAS (Cornell-Ithaca-Volunteers-in-Training-and-Service), the Interreligious International Ministry (IRIM), noncredit courses, lectures, conferences, and involvement in varied services to the University community. A diverse staff of pastoral counselors and advisers, available day or night for consultation, may be reached through the office, 118 Anabel Taylor Hall (telephone 256-4214). This office also has information concerning weekly religious convocations in Sage Chapel and worship opportunities in the local churches and synagogue. Anabel Taylor Hall houses the Commons, a coffeehouse providing a place for informal communication between faculty, staff, and students. Closely associated with CURW but independent of it is the Centre for Religion, Ethics, and Social Policy (CRESP), the nondenominational research and action component of religious affairs at Cornell.

Transportation Services

Traffic and Parking

All on-campus parking (except for certain metered and time zone areas) is by permit only and is subject to posted restrictions; vehicular access to the interior campus is restricted Monday through Friday from 7 a.m. to 5 p.m. A campus bus service operates between peripheral lots and the central campus; several community bus routes connect the University with surrounding residential and commercial areas. (See "Bus Service," which follows, for details.)

All members of the campus community (students, faculty, staff, and employees of non-University agencies located on University grounds) are required to register with the Traffic Bureau any motor vehicles (including motorcycles) in their possession which may at any time be parked on Cornell property. This registration information ensures that the owner or operator may be rapidly identified and contacted if necessary; for example, if a parked vehicle is involved in an accident, must be moved immediately, or has been left with its lights on. There is no charge for vehicle registration; however, a registration sticker is not, in itself, a parking permit.

In general, students residing in campus housing units and commuting students residing more than one and a half air miles from the center of campus are eligible to purchase specific campus parking permits. Students planning to live in University dormitories and apartment complexes should ascertain the availability of student parking near the places they are considering living, since not all residence units have adjacent parking available.

Students requiring special access to parking and transportation facilities for medical reasons or other circumstances should contact the Traffic Bureau to discuss their needs.

Student motor vehicle registration and the sale of 1979-80 parking permits and bus passes will be conducted at University registration in August. Current parking permit eligibility criteria and prices, campus parking maps, consolidated bus service schedules, *Cornell University Regulations Governing Motor Vehicles*, and all other necessary materials will be available at the Traffic Bureau table. Students who miss the table at registration or who later acquire a motor vehicle should visit the Traffic Bureau, 115 Wait Avenue, Monday to Friday during regular business hours (7:45 a.m. to 5:00 p.m. while classes are in session; 7:45 a.m. to 4:00 p.m. during summer and intersession) to register their vehicles and obtain parking permits. In order to be valid, registration and parking permits must be affixed and displayed on the vehicle as directed by the Traffic Bureau at the time of issuance.

Permit prices are \$5 for married student housing (first car; \$54 for each additional car), \$20.25 or \$27.00 for commuting students, and \$40.50 for dormitory residents. Permits issued to students are valid for the period September 1 to June 1 unless otherwise specified. Student bus passes cost \$25 per academic year (\$10 with the purchase of an A permit). Current parking permits may be turned in any time after October 1, 1979 up to March 1, 1980 to receive a prorated refund. Individuals returning their current permit for a refund may not repurchase a permit for the same area later in the year.

Parking and traffic regulations are in effect continuously throughout the calendar year unless otherwise specified. The University reserves the right to change its parking and traffic regulations, fees, and fines at any time.

A student's registration in the University constitutes an agreement to abide by all parking and traffic regulations or be subject to the prescribed penalties. Certain areas on campus are subject to special parking restrictions; students should check the signs, the parking map, and the regulations for details. Regulations are carefully enforced; violators will be issued summonses and may have their vehicles towed away at their own expense. The following chart summarizes the various types of parking violations and assessed fines. No individual who has unpaid or uncleared parking violations from current or previous years will be issued a permit or bus pass until a settlement has been made.

Parking Violation Fine Schedule

All violations may be appealed within 10 working days of issuance of citation.

- 1) Not registered with University or registration not displayed (applies to Cornell community members only)
\$10 fine each violation; reduced to \$5 for first violation if vehicle is registered or registration is properly displayed within 5 working days of issuance of citation.
- 2) Parking without proper permit in restricted parking area
\$5 each violation
- 3) Parking in no-parking zone
\$5 each violation
- 4) Parking in life safety zone
\$15 each violation; vehicle may be towed at owner's expense
- 5) Parking overtime at meter or in time zone
\$5 each violation
- 6) Parking in violation of posted regulations
\$5 each violation

The Traffic Bureau will be glad to assist any individual with general inquiries or special problems and requests (telephone 256-4600).

Bus Service

Information about the campus bus system may be obtained from the Campus Bus Service (telephone 256-3782). Schedules for on-campus and off-campus service are posted in all bus stop shelters and are also available from the Traffic Bureau, the Information and Referral Center in the Day Hall lobby, North Campus Union, and the Willard Straight Hall Information Desk.

On-Campus Service

All campus bus stops are clearly designated. Passengers are to board buses through the front door and exit through the rear door. The fare is 10¢ a ride; only exact change is accepted. Regular employees are eligible to receive free passes, available at the Traffic Bureau. Students may buy semester passes for \$13 (\$5 for students with A parking permits) or academic year passes for \$25 at the Traffic Bureau and at the Willard Straight Hall Ticket Office.

A Lot-B Lot Route Unless otherwise specified in advance by public notice, buses run until 6:00 p.m., Monday through Friday throughout the year. Buses begin running from B Lot at 5:45 a.m. and from A Lot at 7:00 a.m. Service intervals range from approximately five minutes at times of heavy use to fifteen minutes at other times.

Evening Service Unless otherwise specified in advance by public notice, "Blue Light" buses run from Donlon Circle via West Campus to the Dairy Bar at twenty-minute intervals from 6:30 until 11:00 p.m., Monday through Friday during the academic year. There is no passenger fee.

Off-Campus Service

North-East Transit System Buses serving the apartment complexes in Lansing and Cayuga Heights are operated in cooperation with local apartment owners, municipalities, and Cornell University. The schedule includes stops on campus at peak hours, Monday through Friday, during the academic year. Discount tickets are available. For schedule and fare information call Swarthout and Ferris Bus Service (257-2277), the Off-Campus Housing Office (256-5373), or the Office of Transportation Services (256-4628).

Research Park Service A van runs between campus (Day Hall and the Dairy Bar) and Research Park (Langmuir Lab) at approximately one-hour intervals from 8:00 a.m. until 4:30 p.m., Monday through Friday throughout the year. There is no passenger fee. For further information call the Campus Bus Service (256-3782).

Community Service Ithaca Transit buses serving downtown Ithaca, Ithaca College, and Cayuga Heights areas stop on the Cornell campus at Day Hall, Risley Hall, the North Campus dormitories, and Hasbrouck Apartments. Buses run throughout the year from 6:00 a.m. until 6:25 p.m., Monday through Friday, and from 7:00 a.m. until 6:25 p.m., Saturday. An evening service operates at hourly intervals from 7:17 until 11:17 p.m., Friday and Saturday only. Cash fare is 25¢; discounts are available. For further information call Ithaca Transit (273-7348).

Cornell Charter Bus Service Campus buses may be chartered for out-of-town trips or to transport groups on campus or between the campus and local sites. For information call Campus Bus Service (256-3782).

Public Safety Services

Emergencies

Accidents, crimes, fires, and all other emergencies on campus should be reported immediately to the Department of Public Safety, extension 6-1111. The Department of Public Safety is located in G2 Barton Hall and is open twenty-four hours a day. Public telephones to report emergencies are located throughout the campus and can be readily recognized by blue lights above them.

Lost and Found

The central Lost and Found Office operated by the Department of Public Safety is located in G18 Barton Hall and is open from 10:00 a.m. to 4:00 p.m., Monday through Friday, telephone 256-7194. Lost articles are often turned in to the information desks in Day Hall and Willard Straight Hall and other central offices, but all such items are eventually turned over to the central lost and found.

University Services Bureau

The University Services Bureau is responsible for scheduling and staffing extra University functions that require public safety personnel for traffic direction or crowd control. Contact the manager of the University Services Bureau at 6-1111.

Support Services Section

The Public Safety Support Services Section provides lectures and orientation to various University groups on topics ranging from general public safety's services to drug abuse, crime prevention, and rape and assault prevention. Contact the manager of the Support Services Section at 256-7302 if interested in these free programs.

Campus Store

The Cornell Campus Store is located on Central Avenue across the street from Willard Straight Hall. In addition to required text books, it has many nonrequired hardback and paperback books, engineering and drafting supplies, art prints and posters, college jewelry and class rings, sportswear, gifts, candy, snacks, and sundries.

Textbooks bought for a course may be returned only if in absolutely new condition and accompanied by the register receipt and returned within a specified length of time at the beginning of each term (approximately 14 days).

The Campus Store also offers many services to the student: a check-cashing service which allows a student to cash one check a day up to \$25 with a Cornell ID and a 10¢ fee, typewriter rental and repair, camera and pen repairs, film processing, used book buy-back service, racquet stringing, key making, thesis and report binding, and copy service.

The Campus Store will accept personal checks if they are accompanied by the student ID card or the Cornellcard, BankAmericard, or Master Charge.

Store hours are 8:30 a.m. to 5:00 p.m., Monday through Friday, and 10:00 a.m. to 2:00 p.m., Saturday, except during the regularly scheduled vacation periods.

Extracurricular Activities

The cultural, intellectual, and social life of any University community is rich and varied. At Cornell the striking feature of student life is its diversity. For those at Cornell with interests in particular fields, there are more than three hundred organized groups that include both faculty and students in their membership. Among them are clubs for persons with similar academic interests or similar hobbies, local chapters of professional organizations, associations of students from other nations, and a number of national honorary societies that recognize achievement in scholarship and other fields of endeavor. If an interest group does not now exist, like-minded persons may readily establish such an organization.

Music

Students who wish to participate in music making will find a wide range of opportunity through the Sage Chapel Choir, the Cornell Chorus, the University Glee Club, the University orchestras and bands, chamber music ensembles, the Opera Workshop, the Collegium Musicum, and the Indonesian Gamelan Ensemble.

The University Faculty Committee on Music sponsors programs by visiting soloists and major orchestras in the Bailey Hall Concert Series; string quartets and other groups in the Statler Series at Alice Statler Auditorium; and occasional operas, ballets, and special events. Several times each month, the Department of Music sponsors free concerts and lectures by visiting artists or by Cornell faculty and students, primarily in Barnes Hall Auditorium.

On the lighter side, the Cornell Concert Commission offers a series of student-produced popular rock, folk, soul, and jazz concerts. Other student organizations have regular performances of Gilbert and Sullivan operettas, jazz, and folk music. Performers who have recently appeared at Cornell include Linda Ronstadt, Tom Paxton, the Kinks, Bruce Springsteen, and the Grateful Dead. Local bluegrass and folk performers are featured in informal concerts in the Commons, a coffeehouse in Anabel Taylor Hall.

Theater

Diverse dramatic productions are presented by Cornell students throughout the year. Under the sponsorship and general supervision of the Department of Theatre Arts, an intensive production schedule of classic, modern, and experimental dramas are given. Included in these activities are guest professionals, graduate actors, designers, and directors from the department's professional training program as well as undergraduate majors. Tryouts, open to all students in the University who are interested in participating in theater, are held twice a year. The department also manages a more informal production program in its experimental theater, where productions are directed, acted, designed, and managed entirely by students. Casting for these events takes place throughout the year.

Students have numerous opportunities to attend or participate in other theatrical productions. Risley Residential College has a small theater available for production work throughout the year. The Savoyards produce Gilbert and Sullivan operettas regularly, providing

students who wish to gain experience with musical theater opportunities to sing and act or assist with production. In Ithaca, Central Casting, a community theater group, mounts five or six productions a year.

In addition to theater, a series of formal and informal dance programs are sponsored by the Department of Theatre Arts.

Art Exhibitions

Cornell is generously supplied with art exhibitions, some permanent and some temporary. The displays range from the works of students and visiting collections to the permanent University collection housed at the Herbert F. Johnson Museum of Art, one of the most exciting additions to the Cornell campus. Other campus locations for art displays include the Art Room in the Straight, the Fine Arts Gallery in Sibley, and the galleries in Goldwin Smith Hall, Martha Van Rensselaer Hall, and Franklin Hall.

Lectures

On the more academic side of audience entertainment, there is the lecture. Dozens of extracurricular lectures are given every week ranging from scholarly presentations on subjects of narrow interest, such as "The Comparative Biochemistry of Muscle Contraction," to well-known speakers with campuswide appeal, such as Paul A. Samuelson, Martin Luther King, Sr., and Edward Albee.

Films

Cornell does not disappoint the filmgoer. Throughout the year and on almost every night of the week, single film showings and film series make available educational and entertaining films at reduced rates. In addition, there are a half dozen commercial theaters in Ithaca itself, making movie going among the most popular leisure-time activities.

Students who are interested in producing their own films may participate in the filmmaking program sponsored by the Department of Theatre Arts.

Publications

Cornell students edit and publish a wide variety of publications, including a yearbook, the *Cornellian*; literary magazines; and a number of magazines relating to special fields of interest such as the *Cornell Engineer*, the *Cornell Countryman*, and the *Cornell Law Review*. Cornell students are in complete charge (writing, editing, business affairs, etc.) of the publication of the *Cornell Daily Sun*, an independent daily newspaper.

Fraternities and Sororities

Fraternities For many fraternity life is an integral part of the Cornell experience. There are presently forty-six social fraternities at the University with about 2,500 or 30 percent of the male undergraduate student body as members. Each has its particular flavor and environment. With such a large system, one of the largest in the country, diversity is the key to its continuing growth. Students have the opportunity to choose the life-style that appeals to them, from a relatively small fraternity with seventeen members to one of over a hundred. In addition to friendships, fraternities provide opportunities for leadership and personal growth, while most also satisfy room and board

needs. The system is coordinated by the Interfraternity Council, a student-run board that oversees the many programs associated with fraternities.

Sororities There are eleven sororities on the Cornell campus, ranging in size from 10 to 133 members. Approximately 1,000, or 20 percent of the woman students at Cornell are members of these houses. They are an integral and important part of a campus that offers a wide variety of residential and social possibilities. Although most members live in a sorority house at some time during their college career, about half retain social memberships while living elsewhere. The Cornell Panhellenic Council is the governing body for nine of the sororities and it coordinates the activities among the houses within the campus and community settings.

A staff member in the Office of the Dean of Students assists fraternities and sororities to develop constructive activities and provide positive experiences for their members. For information, contact the Dean of Students Office, 103 Barnes Hall (telephone 256-4131), the Interfraternity Council, 210 Willard Straight Hall (256-5183), or the Panhellenic Council.

Athletics

At Cornell athletics are designed to encourage the participation of every able and interested student, either in varsity sports or in the extensive intramural program. Cornell supports the largest intercollegiate athletic program for men and women in the country and belongs to the Ivy League. There is intercollegiate competition for men in the following sports: baseball, basketball, crew, 150-pound crew, cross-country, fencing, football, 150-pound football, golf, gymnastics, hockey, lacrosse, polo, rifle, sailing, skiing, soccer, squash, swimming, tennis, track, and wrestling.

Cornell fields seventeen intercollegiate women's teams, more than any other college or university in New York State. The women's athletic program, one of the largest in the nation, includes basketball, bowling, crew, cross-country, fencing, field hockey, gymnastics, ice hockey, lacrosse, polo, sailing, skiing, swimming, synchronized swimming, tennis, track, and volleyball.

Needless to say, one can enjoy these intercollegiate athletic programs not only as a participant, but also as a spectator.

Cornell's extensive intramural program gives students the chance to exercise and enjoy whatever athletic skills and interests they may have. This program (also one of the largest of its kind in the country), has unusual variety that includes sailing, box lacrosse, broomstick polo, and horseshoes in addition to the more usual sports such as touch football and softball.

Recreational Facilities

The University-owned eighteen-hole championship golf course designed by Cornellian Robert Trent Jones is located on Warren Road near Hanshaw Road. It is open from approximately April 1 to November 1, seven days a week. Hours are from 7:00 a.m. until dark weekdays and from 6:00 a.m. until dark Saturdays and Sundays. Students pay a \$3 fee daily or may purchase student memberships for \$30 per semester. Faculty and staff pay a \$5 fee daily or

may purchase seasonal memberships for \$175. Private instruction, rental of clubs, a driving range, and a putting course are also available.

Helen Newman Hall, located near Balch Residence Halls, contains a large gymnasium, sauna, swimming pool, and bowling lanes. Outside are practice fields and tennis courts. The bowling lanes are open 10:00 a.m. to 11:00 p.m. weekdays and Saturday nights from 6:00 p.m. to 11:00 p.m. The charge is 65¢ per line and shoe rental is available for 35¢.

Swimming Pool Hours Helen Newman Hall

Women only

9:00 a.m. – 10:00 a.m.

and

12:20 p.m. – 1:20 p.m.

9:00 p.m. – 11:00 p.m.

7:00 p.m. – 9:00 p.m.

Monday through Friday

Monday

Thursday and Friday

Coed

9:00 p.m. – 11:00 p.m.

2:00 p.m. – 4:00 p.m.

7:00 p.m. – 8:30 p.m.

Tuesday through Friday

Saturday

Tuesday – Family Swim Session

There is no charge to students. Faculty and staff must pay 50¢ per session or purchase a privilege card for \$15 per semester.

Teagle Hall, located between Lynah Rink and Barton Hall on Garden Avenue, contains a large gymnasium, all-purpose rooms, steam bath, crew tanks, outdoor practice fields, and a swimming pool. All facilities can be used when not needed for physical education classes, Monday through Friday, unless needed for intercollegiate or regularly scheduled intramural events.

Swimming Pool Hours Teagle Hall

Men only

noon – 1:30 p.m.

2:00 p.m. – 3:00 p.m.

noon – 1:00 p.m.

Monday through Friday

Saturday

Sunday

Coed

7:30 p.m. – 9:30 p.m.

7:30 p.m. – 9:30 p.m.

1:00 p.m. – 3:00 p.m.

7:30 p.m. – 9:30 p.m.

7:30 p.m. – 9:30 p.m.

Monday

Tuesday

Sunday

Wednesday – senior life saving

Thursday – Family night
for faculty and staff

Across Garden Avenue is Barton Hall, a vast arena offering facilities for volleyball, basketball, and jogging. Facing Teagle and Barton halls are the Grumman Squash Courts with facilities for squash, handball, and racquet ball.

Just south of Schoellkopf Field on Route 366 are the Oxley Polo Arena and Orthwein Stable where private instruction in horseback riding is available. For more information, call 256-3625.

Lynah Rink, behind Teagle Hall, opens for ice skating in October. Skates may be rented for 75¢. It is open to the public from 1:15 p.m. to 2:45 p.m. weekdays and 3:00 p.m. to 4:30 p.m. and 7:30 p.m. to 9:00 p.m. Sundays. The cost is 75¢ each session. Groups interested in renting the rink for an entire evening should call Lynah Rink, 256-4171.

Students can rent canoes on Beebe Lake behind Noyes Lodge from the Cornell Outing Club at appropriate times. Tennis courts are scattered throughout the campus.

University Requirements for Graduation

For degree requirements such as residency, number of credits, distribution of credits, and grade averages, see the individual requirements under each college or school or contact the college offices.

Physical Education

All undergraduate students must complete the University requirement in physical education unless specifically exempted for medical reasons, for military service, for participation in athletics or marching band, or for unusual conditions of age, residence, or outside responsibilities. For students in the class of 1981 or earlier, the requirement is four terms, while for students in the class of 1982 or later, it is two terms of physical education. These requirements should be fulfilled in the first terms of residence at Cornell. Transfer students have the requirement reduced by the number of terms completed in a college of recognized standing before entering Cornell.

Postponements are allowed *only* by consent of the University Faculty Committee on Physical Education. Students are exempt from fulfilling this requirement only when it is recommended by the Cornell medical staff, or because of unusual conditions of age, residence, military service, or outside responsibilities. Students should check with their respective college offices if they have any questions about this requirement.

The University requirement can be met by satisfactory work in courses supervised by the Department of Physical Education. These courses are described in *Cornell University: Description of Courses*.

Swim Test

All new students who do not pass a basic seventy-five-yard swim test are required to include swimming in their program of physical education unless they are excused by Gannett Clinic. All nonswimmers are required to register in beginning swim classes.

Undergraduate Degrees

The undergraduate curricula at Cornell University lead to the Bachelor of Arts (A.B.) degree in the College of Arts and Sciences. The Bachelor of Science (B.S.) degree is offered by the College of Agriculture and Life Sciences, the College of Human Ecology, the School of Hotel Administration, the College of Engineering, and the School of Industrial and Labor Relations. The College of Architecture, Art, and Planning offers the Bachelor of Architecture (B.Arch.), the Bachelor of Fine Arts (B.F.A.), and the Bachelor of Science (B.S.) degrees. The academic programs for which degrees are awarded are registered with the New York State Education Board and are appropriately linked with HEGIS codes for federal and state reporting purposes. In order to be eligible for certain categories of financial aid, enrollment in a registered degree program is mandatory. See degree program listings under individual schools and colleges for further information.

Cornell University Grading System

These definitions and policies were adopted by the University Faculty in May 1965 and revised in March 1979.

Grades

S-U		Letter		Grade Point Value	Description
S	PASSING	PASSING	A+	4.3	<i>Excellent to Very Good:</i> comprehensive knowledge and understanding of subject matter; marked perception and/or originality.
			A	4.0	
			A-	3.7	
			B+	3.3	<i>Good:</i> moderately broad knowledge and understanding of subject matter; noticeable perception and/or originality.
			B	3.0	
			B-	2.7	
			C+	2.3	<i>Satisfactory:</i> reasonable knowledge and understanding of subject matter; some perception and/or originality.
			C	2.0	
			C-	1.7	
U	FAIL	FAIL	D+	1.3	<i>Marginal:</i> minimum of knowledge and understanding of subject matter; limited perception and/or originality.
			D	1.0	
			D-	0.7	
			F	0.0	<i>Failing:</i> unacceptably low level of knowledge and understanding of subject matter; severely limited perception and/or originality.

Symbols Used in Lieu of Grades

INC	Incomplete: (1) Student has substantial equity in course, and (2) is unable to complete course requirements because of circumstances beyond his or her control. INC is not a student option.
V	Summer school and extramural students may officially register as visitors (auditors) in courses and have this entered on their permanent records if their attendance is reported as satisfactory. Graduate students may register for courses as auditors but this will not be entered on their permanent records. Undergraduates may not register as auditors.
R	Indicates registration in a year-long course approved by the college as not requiring a grade at the end of the first (current) term.
NMG	No Midterm Grade (midterm only): Indicates that the student is enrolled and attending but the instructor feels it is not practical to give a grade.
NA	Not attending: Student is officially enrolled but has not attended or participated in class work.

Privacy of Records

According to federal law, grades are restricted information and may be released only to the student, or at the student's written request. Thus grades earned on examinations or in courses may not be posted by name. Posting by student ID number is permissible. Graded papers and examinations, if returned, must be returned to individual students and should not be accessible to anyone but the author. For example, setting batches of papers and examinations in a box or on a table is inappropriate and illegal.

Grading Guidelines

Incomplete

The symbol of Incomplete is only appropriate when two basic conditions are met:

- 1) The student has a substantial equity at a passing level in the course with respect to work completed; and
- 2) The student has been prevented by circumstances beyond the student's control, such as illness or family emergency, from completing all of the course requirements on time.

An Incomplete may not be given merely because a student fails to complete all course requirements on time. It is not an option which may be elected at the student's own discretion.

While it is the student's responsibility to initiate a request for an Incomplete, reasons for requesting an Incomplete must be acceptable to the instructor, who establishes specific make-up requirements. The instructor has the option of setting a shorter time limit than that allowed by the student's college for completing the course work. Several colleges require that a statement signed by the instructor be on file indicating the reason for the Incomplete and the restriction, if any.

The consequence of failure to complete all course work within the time permitted will depend upon the policy of the student's college of registry. Some colleges convert Incompletes to a grade of "F"; others let the grade of Incomplete stand on the student's transcript. In either case, the option to make up the work is lost.

It is the responsibility of the student to see that all Incompletes are made up within the deadline and that the grade change has been properly recorded with the student's college registrar.

Under no circumstances should faculty members give an Incomplete due to pressure to meet the deadline for reporting grades. The symbol Incomplete becomes a permanent part of the student's transcript, even when a grade is later submitted.

Not Attending

The symbol for Not Attending (NA) is to be used only for students who are officially enrolled, but for whom there is no record of any active participation in any course (no tests taken or lab reports or other papers submitted on which a grade can be based) and no record of any attendance beyond approximately the first two weeks.

NA should not be used in place of F for students who drop out of a course after doing poorly in one or more examinations or submitted papers.

Changes in Grades

Each semester's work is an entity and grades are assigned only for work completed during the normal period of the semester, unless the instructor has agreed to give an Incomplete (see guidelines above). Subsequent changes in a grade may be made only if the instructor made an error in assigning the original grade. As a matter of equity, grades may not be changed after the end of a semester because a student has subsequently done additional work.

Grade Distribution and Procedures

Distribution

Grades for the spring semester are mailed to the student in the summer. Grades for the fall semester are handed to the student by the student's college at spring semester registration. Summer session grades are mailed to students as soon as available after the summer term is completed.

Official Transcripts

An official transcript is one that bears the official seal of the University and the signature of the University registrar, sent in a sealed envelope directly from the Office of the University Registrar to another institution or agency as directed by the student.

Transcripts of Record

Official transcripts of student records are issued upon written request of the student or former student whose financial obligations to the University are met in full. Transcript cost is \$2 for the first (or single) copy and \$1 for each additional copy on the same order. Each degree recipient will receive a free transcript after graduation. Transcripts requested within one month of the close of a semester may not reflect current grades.

It is the policy of the University Registrar and a requirement of the Family Educational Rights and Privacy Act that only the student can authorize the release of the student's transcript. All transcript requests must be submitted in writing. *Telephone requests will not be honored.* Official transcript request forms are available in the Office of the Registrar, 222 Day Hall. Letters of request also are honored if accompanied by payment.

Student Copy Transcripts

A Student Copy Transcript is one delivered to the student and does not bear the seal of the University nor the signature of the University Registrar. It is informational and is not intended to be official. Many institutions and agencies will not accept as official any transcript that does not come directly from the Office of the University Registrar.

Class Schedules and Attendance

All lectures, recitations, and similar exercises start at 8:00 a.m., 9:05 a.m., 10:10 a.m., 11:15 a.m., 12:20 p.m., 1:25 p.m., 2:30 p.m., or 3:35 p.m. and last fifty minutes, except that on Tuesday and Thursday the first and second, the third and fourth, the fifth and sixth, and the seventh and eighth periods may be combined to allow for longer meeting times.

All laboratories and similar exercises that continue for 1 hour and 55 minutes, 2 hours and 25 minutes, or 3 hours are scheduled as shown below.

Schedule for Classes Longer than Fifty Minutes

1 Hour and 55 Minutes

8:00 a.m. – 9:55 a.m.
10:10 a.m. – 12:05 p.m.
12:20 p.m. – 2:15 p.m.
2:30 p.m. – 4:25 p.m.
7:30 p.m. – 9:25 p.m.

2 Hours and 25 Minutes

7:30 a.m. – 9:55 a.m.
10:10 a.m. – 12:35 p.m.
2:00 p.m. – 4:25 p.m.
7:30 p.m. – 9:55 p.m.

3 Hours

8:00 a.m. – 11:00 a.m.
10:10 a.m. – 1:10 p.m.
1:25 p.m. – 4:25 p.m.
7:30 p.m. – 10:30 p.m.

On Monday, Tuesday, Wednesday, and Thursday the hours of 4:25 to 7:30 p.m.; on Friday the hours after 4:25 p.m.; on Saturday the hours after 12:05 p.m.; and all day Sunday are free from all formal undergraduate class or laboratory exercises.

Evening classes are held only on Monday and Wednesday and only when regularly scheduled and included in written college announcements or when recommended by the Committee on Academic Records and Instruction. Evening lectures, recitations, and similar exercises start at 7:30 and 8:35 p.m.; evening laboratories and similar exercises start at 7:30 p.m.

Evening preliminary examinations that are to be given outside of normal class hours may be scheduled on Tuesday and Thursday evenings only, and all such examinations must be scheduled with the Examination and Room Coordinator in the Office of the University Registrar.

No exceptions to the above schedules including the provision for free time on Monday, Tuesday, Wednesday, and Thursday between 4:25 p.m. and 7:30 p.m., on Friday after 4:25 p.m., on Saturday after 12:05 p.m., and on Sunday shall be allowed save by permission of the dean or director of the school or college concerned. Such exceptions must be regularly scheduled and published in the college or University announcements.

Class Attendance and Absences

Students are expected to be present throughout each term at all meetings of courses for which they are registered. There is no University excuse for absence from class. Each school and college has its own policy on excused absences. A student whose participation in athletics or other recognized extracurricular activities requires occasional absence from the campus should present an appropriate letter to the instructor attesting that the proposed absence is in connection with a recognized activity.

Legislation originally passed by the University Senate and still University policy recommends that students not be penalized for the observance of religious holidays and that they be permitted to make up classes, exercises, and examinations missed on such holidays.

The right to excuse a student from class rests with the faculty member in charge of that class at all times except during the periods just before and just after Thanksgiving, Christmas, and spring vacations. Penalties for unexcused absences are at the discretion of the individual faculty member.

By direction of the University Faculty, each faculty member and instructor has the special responsibility for maintaining the regular quality and content of instruction in classes held just before and just after University vacations. This responsibility prevails regardless of the number of students present in the classroom.

Final Examinations

Final examinations for undergraduate courses are scheduled by the Office of the University Registrar. Examinations may be one, two, or two and one-half hours in length at the discretion of the department concerned. Examinations not listed in the registrar's examination schedule will be arranged by the professor in charge and must fall within the announced examination period, except by the express permission of the dean of the faculty in accordance with existing faculty legislation.

Auditing Courses

Summer school and extramural students may officially register as Visitors (auditors) in courses and have this entered on their permanent records if their attendance is reported as satisfactory. Graduate students may register for courses as auditors but will not have the courses listed on their transcripts. Undergraduates may not register to audit courses.

Leaves and Withdrawals

A leave of absence must be requested from the college in which the student is enrolled. A leave of absence is granted for a specified time after which the student is expected to return to resume course work. The student should inform the college of enrollment of his or her intent to return.

A student may withdraw from the University at the student's discretion. However, a college may withdraw a student who fails to return at the end of a period of authorized leave.

Internal Transfers

A student in good standing may apply to transfer from one college to another within the University. It is necessary for an internal transfer to inform the admitting college of the acceptance of admission within seven days of the offer of admission.

Cornell Alumni Association

Over a century ago, on June 26, 1872, at the time of the annual commencement in Ithaca, representatives of the first four classes of Cornell University met to form the Cornell Alumni Association, "to promote in every proper way the interest of the University and to foster among the graduates a sentiment of regard for each other and attachment to their Alma Mater."

The membership of the association includes every Cornell graduate, every matriculant of Cornell whose entering class has been graduated, and every candidate for an advanced

degree at Cornell. At present there are more than 150,000 living Cornell alumni, including approximately 9,000 living overseas.

The association holds its annual meeting in Ithaca during Reunion Weekend, when the president of the association reports for the executive committee on the year's activities; the president of the University gives his report on the state of the University; the results of the alumni trustee elections are announced; and other association business is transacted. All members present are eligible to vote on any matter brought before a meeting of the association. For more information contact Frank Clifford, Director of Alumni Affairs, Alumni House, 626 Thurston Avenue, at 256-2390.

Cornell Ambassadors

The Cornell Ambassadors is an organization of undergraduate students founded in 1969 for the purpose of furthering undergraduate-alumni relations. The organization, associated with the Office of Alumni Affairs from its inception, is convinced that continual student-alumni interaction is vital to the best interests of the University. Its membership is composed of representatives from all seven of the University's undergraduate colleges as well as the graduate and law schools. Generally Cornell Ambassadors should be articulate, informed, and willing to take on the responsibility of speaking assignments. These assignments allow the Ambassador to present his or her own viewpoint — a viewpoint that need not necessarily reflect the views of other members of the organization or of the Cornell student body. Ambassadors serve as hosts during Homecoming Weekend, meet with Cornell Council members during Trustee/Council Weekend, and lend a hand in other Ithaca-based alumni activities. Participation in an extensive series of student phonathons for the Cornell Fund affords an unusual opportunity for Ambassadors to encourage continued alumni support. For more information contact John Stone at the Alumni House, 256-4850.

New York State College of Agriculture and Life Sciences

Administration

David L. Call, Dean

Joan R. Egner, Associate Dean

J. Robert Cooke, Director of Instruction

Helen L. Wardeberg, Associate Director of Instruction

Noland L. VanDemark, Director of Research and Director of the New York State Agricultural Experiment Station (Ithaca)

Ronald J. Kuhr, Associate Director of Research and Associate Director of the New York State Agricultural Experiment Station (Ithaca)

Theodore L. Hullar, Associate Director of Research and Associate Director of the New York State Agricultural Experiment Station (Ithaca)

Donald W. Barton, Director of the New York State Agricultural Experiment Station (Geneva) and Associate Director of the New York State Agricultural Experiment Station (Ithaca)

Alexander C. Davis, Associate Director of the New York State Agricultural Experiment Station (Geneva)

Lucinda A. Noble, Director of Cooperative Extension

David T. Smith, Associate Director of Cooperative Extension

Joseph F. Metz, Jr., Director of International Agriculture and Director of Planning and Facilities

Office of Instruction Staff

Student Affairs: D. Burgett

Minority Affairs: Professor D. Graham

Registrar: R. Stanton

Scheduling: T. Wakula

Admissions: L. Feddema, G. Peck, R. Church

Career Planning and Placement: R. Hopkins

Department Chairmen

Agricultural Economics, O. D. Forker

Agricultural Engineering, N. R. Scott

Agronomy, R. F. Lucey

Animal Science, R. J. Young

Communication Arts, C. H. Freeman

Education, J. P. Bail

Entomology, E. H. Smith

Floriculture and Ornamental Horticulture, C. F. Gortzig

Food Science, J. E. Kinsella

Microbiology, R. P. Mortlock

Plant Resources, W. H. Everhart

Plant Breeding and Biometry, R. L. Plaisted

Plant Pathology, D. F. Bateman

Plant Physiology, W. J. Kender

Poultry Science, M. L. Scott

Rural Sociology, E. W. Coward

Vegetable Crops, R. D. Sweet

Facilities

The College of Agriculture and Life Sciences, with 2,900 undergraduates, is the second largest of the University's undergraduate divisions. Many of its eighteen major buildings are clustered around the Ag Quad on the upper campus. There are fourteen thousand acres of land for research and instruction, greenhouses, a forest, experiment stations in Ithaca and Geneva, and numerous farms and facilities across the state.

Mann Library houses one of the largest agricultural collections in the country. The Computer-Assisted Searching (COMPAS) system provides on-line communication with large data bases in a number of areas. Students also have access to IBM's large 370/168 computer and both TELENET and EDUNET worldwide computer networks.

The College of Agriculture and Life Sciences is also a major research institution investigating everything from how to produce more grain per acre, more milk per cow, and more meat per animal to how the process of photosynthesis can be "translated" to help man develop more efficient means of food production, how the study of homing pigeons may help predict earthquakes, and how the Adirondacks can be protected from the acid rain carried by clouds from polluted metropolitan areas. Incorporating research findings into the instructional program creates a stimulating learning environment.

Degree Programs

	Degree	HEGIS Code
Agricultural Business Management and Marketing	B.S.	0112
Agricultural Economics	B.S.	0111
Agricultural Education	B.S.	0899
Agricultural Engineering	B.S.	0903
Animal Physiology and Anatomy	B.S.	0410
Animal Science	B.S.	0104
Aquatic Science	B.S.	0107
Atmospheric Sciences	B.S.	1913
Biochemistry	B.S.	0414
Biological Sciences	B.S.	0401
Botany	B.S.	0402
Communication Arts	B.S.	0601
Ecology and Evolution	B.S.	0420
Education	B.S.	0801
Entomology	B.S.	0421
Environmental Horticulture	B.S.	0108
Environmental Technology	B.S.	0199
Farm Business Management and Finance	B.S.	0110
Field Crops	B.S.	0102
Floriculture and Ornamental Horticulture	B.S.	0109
Food Industry Management	B.S.	0112
Food Science	B.S.	0113
General Environmental Studies	B.S.	0420
General Plant Sciences	B.S.	0402
General Studies	B.S.	0101
Genetics and Development	B.S.	0422
International Agriculture	B.S.	0101
Landscape Architecture	B.S.	0204
Microbiology	B.S.	0411
Natural Resources	B.S.	0115
Neurobiology and Behavior	B.S.	0425
Plant Breeding	B.S.	0116

Plant Pathology	B.S.	0404
Pomology	B.S.	0108
Resource Economics	B.S.	0111
Rural Sociology	B.S.	2208
Soils Science	B.S.	0103
Statistics and Biometry	B.S.	0419
Vegetable Crops	B.S.	0108

Information about academic programs, admissions, financial aid, placement, and career opportunities may be found in *Agriculture and Life Sciences at Cornell*, the *Announcement of General Information*, and the *Announcement of The Graduate School*. To obtain a copy of the publication you are interested in, contact the Admissions Office, 195 Roberts Hall (telephone 256-2036), or write Cornell University Announcements, Research Park, Ithaca, New York 14850.

The College of Agriculture and Life Sciences offers programs leading to the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy as well as professional degrees including the Master of Professional Studies, Doctor of Education, and Master of Arts in Teaching. Graduate-level programs are offered in agricultural economics; agricultural engineering; agronomy; animal breeding; animal science; communication arts; development sociology; education; entomology; environmental quality; floriculture and ornamental horticulture; food science and technology; international agricultural and rural development; microbiology; natural resources; plant breeding and biometry; plant pathology; plant protection; pomology; vegetable crops; and graduate programs in the Divisions of Biological Science and Nutritional Sciences. The Master of Professional Studies (Agriculture) and Master of Professional Studies (Communication Arts) degree programs are also administered by the college.

Admission

College of Agriculture and Life Sciences students form an academically select group. About 90 percent were in the upper fifth of their high school graduating classes. Most students come from New York State, but about 15 percent come from other parts of the United States. Students from many countries around the world attend the college. There are exchange students from Sweden, Mexico, and England in residence. Nearly half of the undergraduates are women. Approximately 30 percent of the undergraduate students are transfers who have taken part of their collegiate work at community colleges, agricultural and technical institutes, and other academic institutions. About a thousand graduate students attend classes in this college.

The Admissions Committee selects those students who are academically well prepared and appear most likely to profit from the various programs offered in the College of Agriculture and Life Sciences. The committee examines each applicant's educational goals, college entrance test scores, high school record, work experience, and recommendations by counselors, alumni, and others. Although the committee uses general guidelines to evaluate the academic strengths of each application, there are no absolute standards for admission.

An applicant must (1) be at least sixteen years old; (2) have completed a minimum of sixteen high school units, including four units of English and three units of mathematics, with three units of science (biology,

chemistry, and physics) recommended; and (3) have taken the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board or the American College Testing Program (ACT).

Applicants submitting SAT results are encouraged to take achievement tests in two of the following: English composition, mathematics, and science. Students who wish to major in the biological sciences should have a strong foreign language background.

Transfer Students Many students enter the college as transfer students. Those planning to attend a two-year college can apply to Cornell while in high school and be accepted for their junior year under the Guaranteed Transfer Program.

Students attending a two-year college normally complete their associate degree before they transfer. No more than sixty credits, including summer courses, may be transferred from any combination of colleges.

Transferring within Cornell A student in good standing may apply to transfer from one college to another within the University.

Students who wish to transfer should discuss their eligibility with an admissions counselor in the College of Agriculture and Life Sciences. If an offer of admission is made, the student must notify the college of his or her decision within seven days.

Special Students A limited number of nondegree candidates who want to take selected courses in the college are admitted each year. Applicants should submit the standard Cornell application, a resume of their work experience, and an outline of the courses they wish to take. For more information, contact the Admissions Office, 195 Roberts Hall (telephone 256-2036).

Undergraduate Degree Requirements

To qualify for the Bachelor of Science degree, students must fulfill requirements established by the faculty of the College of Agriculture and Life Sciences and administered through the Office of Instruction. The specific requirements are given below.

Residence

Normally students must have completed eight terms and earned the last 30 credits in residence at the College of Agriculture and Life Sciences. Students may petition to take up to 8 of the last 30 credits elsewhere. To graduate in fewer than eight terms, a cumulative average of at least 2.00 is required.

Students are entitled to the full eight semesters of residence even though they may have completed the graduation requirements before that. However, students that have been in residence for eight semesters and have met the graduation requirements will be graduated. A student who wishes to continue after graduation must petition to register as a special student.

Credits

A minimum of 120 semester credits are required. Those students who take Orientation 5, Math 109, or Learning Skills Center courses must complete the 120 credits in addition to the credit earned in those courses.

Average

A cumulative average of 1.70 or above and a term average of 1.70 or above in the last term or summer session of the senior year is required for graduation. Only grades earned at Cornell University while registered in the College of Agriculture and Life Sciences are included in this average. A student who fails to obtain the 1.70 average during the last term and who wishes to qualify for the B.S. degree must subsequently complete a minimum of 6 credits in summer session courses at Cornell or a minimum of 12 credits during a regular term in the College of Agriculture and Life Sciences with an average of at least 1.70.

Courses

Course credits must fall within the outlines that follow.

Distribution Students are required to take 45 credits in the physical sciences, biological sciences, social sciences and the humanities, and oral and written expression.

- 1) *Physical Sciences*: 9 credits, including 6 credits of chemistry or physics or mathematics
- 2) *Biological Sciences*: 9 credits, including 6 credits of beginning biological sciences
- 3) *Social Sciences and the Humanities*: 9 credits in at least two subject areas
- 4) *Oral and Written Expression*: 9 credits, including 6 credits of written expression

An additional 9 credits is to be selected from any of the four areas to complete the 45-credit requirement.

Statutory College Electives Students must take 55 credits or more in the state-supported divisions, of which at least 45 credits must be from courses taught in the College of Agriculture and Life Sciences. Courses taken in the college may fulfill specialization requirements and should be planned in consultation with a faculty adviser. Information about requirements and specializations with the following areas may be obtained from the program coordinator.

Program Area	Coordinator
Agricultural and biological engineering	D. Ludington
Animal science	R. Natzke
Applied economics and business management	D. Goodrich
Behavioral and social sciences	W. Coward
Biological sciences	S. Zahler
Environmental studies	J. Peverly
Food science	J. Sherbon
Plant sciences	L. Creasy

Other Electives Up to 20 credits may be taken in any school or college at Cornell and will count toward the degree requirement of 120 credits.

Other Requirements

Work Experience is recommended in most program areas. Students should consult their advisers for information.

Physical Education Students are required by the University to complete two semesters of physical education (see "University Requirements for Graduation").

Schedule Requirements Progress of each student toward meeting graduation requirements is recorded by the College Registrar on a Summary of Record form. It is the responsibility of the student and the faculty adviser to make certain that satisfactory progress is being made toward completion of the requirements. The schedule requirements which all students must fulfill are listed below.

- 1) Students must register for at least 12 credits per term. (No freshman may register for more than 18 credits.)
- 2) Students must not take more than 20 credits of nonagricultural electives until the agricultural elective requirement has been completed.
- 3) Each student must take at least one college elective course each term unless the required college electives have been completed. This requirement can be waived by the adviser.
- 4) All students should construct schedules appropriate for their fields of specialization.
- 5) When registering for the first time in the college, each student must take the College Mathematics Test and if the score is below the minimum required, take Orientation 5, a remedial course in mathematics.

Leave of Absence

Students who find it necessary to leave the University *before the end of a term* should request a leave of absence in writing. Such action is necessary in order to clear the record for that term.

Students leaving *at the end of any term*, whether temporarily or permanently, should notify the Registrar's Office on a standard petition form or by letter. Action is positive as long as the student is in good standing. Only if a leave of absence has been approved will the college guarantee readmission.

A file of students who are on leave of absence is maintained in the Office of Student Affairs. If a student is unable to return to college when expected, he or she should write to that office to request an extension of the leave of absence or a withdrawal.

Withdrawal

A student who finds it necessary to leave the University permanently should file a written notice of withdrawal. Students who wish to be readmitted must reapply through the Office of Admissions.

Academic Policies and Procedures

Registration

At the beginning of every term, each student registers with both the University and with the College of Agriculture and Life Sciences. This registration notifies the University and the college that the student is present.

Entering freshmen register for courses by mail. The Scheduling Office sends a form to the student listing the name of the adviser, required courses, and suggested electives. New transfer students are urged to come to the campus to meet with the adviser and register in person.

During a two-week period near the middle of each semester, students already registered in the college plan and submit their course schedule for the next term. Each student picks up course registration material at the Scheduling Office and then meets with his or her adviser.

Registration in Absentia A student who expects to attend another college or university as a full-time student must petition for permission to register in absentia. *The petition must be filed before the student leaves Cornell.* It must explain why the student wishes to study at another college and include a description of the courses that will be taken. The adviser's signature on the petition will indicate approval of the proposed course of study. Final approval of the petition by the Committee on Academic Achievement and Petitions guarantees transfer of credit as long as the student receives grades of C or better.

Course Changes (Add/Drop Changes)

Students receive credit for those courses for which they registered *unless they have officially changed such registration*. All changes in courses or credit hours or grading options must be made by the student at the Scheduling Office using the forms provided by the office.

Changes in course registration may be made during the first three weeks of the term with the adviser's approval. To make the change official the student must submit a properly signed course change form to the Scheduling Office.

Beginning in the fourth week of the term course changes are made only with the approval of the Committee on Academic Achievement and Petitions. Students must obtain a special petition form for course changes from the Scheduling Office.

From the fourth week until the end of the sixth week of the semester requests for course changes that seem reasonable and have the approval of the adviser are usually approved by the committee. However, a petition to drop a course which is necessary to fulfill a requirement will generally be denied.

Beginning with the seventh week of the term, requests for course changes are approved only when the members of the committee are convinced that there are unusual circumstances that are clearly *beyond the control of the student*. Fear of failure in a course is not considered an acceptable reason for dropping it late in the semester. If the student cites medical reasons for dropping a course the petition should be accompanied by verification from a doctor whenever possible.

Petitioning Procedures

Petition forms are available in the Office of Instruction. A petition to waive any college academic regulation should include clear evidence that the exception is warranted by unforeseen circumstances *beyond the control of the petitioner*. Students should prepare the petition in consultation with their adviser, whose signature is required. A student whose petition is denied by the committee may appeal after consulting a staff member in the Office of Student Affairs.

Attendance

Regular attendance at lectures, recitations, and laboratory periods is expected throughout each term, beginning with the first day of instruction. A student whose record shows persistent absence or neglect risks dismissal from the college.

Grades

Letter Grades See "Cornell University Grading System."

Changing Grades Students are not permitted by the college to take an examination over again for the purpose of changing a grade. After receiving a passing grade in a course, students may reregister for that course to raise the grade by registering for *0 credit only*. Students must take a minimum of 12 credits of new course work in addition to the course being repeated.

S-U Grading The faculty has approved the use of S and U (satisfactory and unsatisfactory) grades within the guidelines below.

- 1) S-U grade equivalents are set by University policy; S is given for grades of C- or above and U for grades of D+, D, D-, or Failure.
- 2) The S-U option can be used only for courses which have been approved for that option. The course description in *Cornell University: Description of Courses* will indicate if an S-U option is offered.
- 3) The student must choose the S-U option no later than the end of the third week of the term.
- 4) Requests to change the grading option after the third week of classes must be made by petition to the Committee on Academic Achievement and Petitions. Such petitions are approved only when there are unusual circumstances clearly beyond the control of the student.
- 5) To meet graduation requirements, each student must have at least 100 credits of course work for which letter grades have been earned.
- 6) Students above the freshman level may take as many S-U-graded credits each term as they wish. Freshmen may not register for S-U grading.
- 7) Students must earn letter grades other than S or U for courses that their advisers consider necessary for their specialization and for the 45 credits taken to fulfill the distribution requirement. The only exception made is for English 137 and 138, which are only offered on an S-U basis.
- 8) S and U grades will not be included when semester and cumulative averages are computed, but will be counted for credit if an S is received. Courses taken for S-U grades will appear on the student's record.

Incompletes The grade Incomplete (INC) may be assigned when the work of a course is not completed by the end of the semester due to circumstances beyond the student's control. The work done must be of such amount and quality that completion of the remainder might entitle the student to credit for the course. A grade of INC *automatically becomes an F* if not removed during the student's two subsequent terms of attendance, or, in the case of seniors, prior to graduation. A student cannot reregister for a course in which he has received a grade of Incomplete.

Arrangements for making up the work in a course in which an Incomplete has been received must be made with the professor in charge of the course. When an Incomplete has been made up, the grade is recorded as a separate entry and shows that the course has been completed. The Incomplete notation is not removed from the record.

Not Attending The grade of Not Attending (NA) may be assigned when the student attended the course infrequently *at the beginning of the semester*. It cannot be used in place of a failing grade or an Incomplete nor when a student has abandoned a course late in the semester.

Grade Reports

Fall term grades are distributed to students when they register for the spring term. Spring term grades are mailed to students by the University Registrar.

Official Transcripts

Official transcripts are issued only by the Office of the University Registrar in Day Hall and only upon written request of the student. Copies of the student's record are available in the College Registrar's Office at any time, but generally are not suitable as transcripts.

Academic Deficiency

The Committee on Academic Achievement and Petitions reviews the records of those students who are failing to meet any academic requirements of the college or who persistently fail to attend classes. In general terms, regular participation in course work with academic loads at a level sufficient to assure graduation within eight semesters and grades averaging C- or higher are evidence of satisfactory progress.

The committee considers failure to attend and participate in courses on a regular basis possible cause for action. In addition, at the end of each semester the committee may take action if a student has failed to meet one or more of the following criteria.

- 1) Semester quality point average of at least 1.70.
- 2) Cumulative quality point average of at least 1.70.
- 3) Passing grades for 12 or more credits in academic subjects.
- 4) Normal progress toward meeting the University's requirement in physical education.
- 5) Normal progress toward completion of distribution requirements and other college or University requirements in eight semesters.

Possible Actions The review of the records of students who are failing to meet the academic requirements of the college will result in one of the following actions.

- 1) *No Action* may be taken if the student's record is unsatisfactory in some respect, yet not deficient to a degree which warrants action.
- 2) *Warning* indicates that the student's record is unsatisfactory but a reasonable amount of study with adequate attention to academic obligations should result in return to good academic standing.
- 3) *Advised to Take Leave of Absence* The committee may recommend that some time away from the college would be beneficial. The decision to take a leave of absence, however, is up to the student. If the student

does not take leave, he or she automatically undergoes review during the following semester (called a Trial Term), and is expected to achieve a quality point average of at least 1.70 or higher, as specified by the committee.

- 4) *Suspended* Depending on the relative level of academic achievement, both during the preceding semester and for all previous semesters, a student may be suspended for one or two semesters. Students may not return to the college unless the student's petition for readmission receives favorable action.
- 5) *May Not Reregister* This action is taken when a student's record is so poor that there is little chance of ever meeting degree requirements.

Honors

Bachelor of Science with Distinction The degree of Bachelor of Science with Distinction will be conferred upon those students who, in addition to having completed all of the requirements for the Bachelor of Science degree, have done all of their undergraduate work at Cornell and have cumulative averages of 3.3 quality points or above and upon those transfer students who have been in residence for at least four semesters and have cumulative averages of 3.5 quality points or above at Cornell.

Bachelor of Science with Honors Students who have a cumulative grade point average of 3.0 after having completed 55 semester credits, of which at least 30 credits have been at Cornell, are eligible to apply to the honors program. A major part of the honors program involves independent research under the direction of a faculty member. Students who are interested in this program should talk to their faculty adviser early in the junior year.

Students must make *written* application no later than the end of the third week of the first semester of the senior year. Forms are available from the College Registrar's Office. The Registrar's Office will verify the student's grade point average and will forward copies of the completed form to the student, the adviser, the faculty member who will be supervising the honors project, and the chairman of the appropriate honors committee.

Each honors committee will establish deadlines for submission of the student's final report and the criteria for evaluation. The Bachelor of Science with Honors is awarded to those students who are recommended by the committee and have a cumulative quality point average at graduation of 3.0 or more.

Bachelor of Science with Distinction and Honors

Students who meet the requirements of both programs will be graduated with distinction and honors.

Dean's List Excellence in scholarship is recognized twice a year by publishing on the Dean's List the names of those students who have completed at least twelve credits of course work for letter grades, who are in good standing, and whose semester averages in academic courses are 3.30 quality points or above.

Advising and Counseling Services

The faculty in the College of Agriculture and Life Sciences recognize that students need information and advice to make intelligent decisions while in college. They believe that personal contact on a one-to-one basis is an important

way to identify individual differences and needs of students. The faculty believe that they can and should be an important source of information and advice on both academic and personal matters. Thus, they consider advising to be an important and integral part of the undergraduate program.

Faculty members in each specialization volunteer to advise students with occupational interests similar to theirs. Students who have not already selected a program area or specialization may select one when they first register in the college. Others may select a specialization later after they have identified more definite career objectives. Every effort is made to match the student's and the faculty member's interests as closely as possible.

Overall responsibility for coordinating the Advising Program rests with the Office of Student Affairs. Specific inquiries regarding procedures and regulations should be directed to Dr. Donald Burgett, 17 Roberts Hall, or to the program coordinators (see "Undergraduate Degree Requirements").

Students are assigned a faculty adviser soon after they are admitted to the college, and the adviser's name is listed on the forms that the Scheduling Office sends to entering freshmen.

Students may change advisers whenever they feel that their needs can be better served. Change of Adviser forms are available in the Office of Student Affairs. Students must obtain consent of the new adviser and return the completed form to the College Scheduling Office to make the change official.

The duties of an adviser include:

- 1) helping students select suitable courses and other educational opportunities available on campus;
- 2) giving advice to help improve the student's academic performance;
- 3) acting as a counselor on any matters the student may wish to discuss; and
- 4) referring students to other staff members or agencies who are better qualified to deal with certain types of problems than is the adviser.

The Minority Affairs Office in the College of Agriculture and Life Sciences works in conjunction with the University-wide COSEP Program to provide counseling, tutoring, advising, and referrals of students to agencies that will meet their special needs.

The Educational Opportunity Program (EOP) is a state-supported program intended to assist New York State students who meet specific economic and academic criteria set by the New York State Education Department. Students in the Colleges of Agriculture and Life Sciences and Human Ecology and the School of Industrial and Labor Relations are eligible to apply to the program.

Career Placement Services

A variety of placement services are available to seniors and alumni of the college. For further information, contact the Office of Career Planning and Placement, 16 Roberts Hall (telephone 256-2215).

Senior Search Packets are distributed to seniors and others who are entering the job market. The packet contains a variety of resource materials to assist students in planning and beginning their search for employment.

Job Opportunity Listings are published monthly and mailed to seniors and alumni interested in learning about available opportunities. Each listing contains information about specific job opportunities that have come to the coordinator's attention. The listing is available free on request to seniors. Alumni are charged \$5 per year to receive it.

Candidates Available List gives seniors and alumni an opportunity to publicize their qualifications to potential employers.

On-Campus Interview Services are available for employers wishing to employ graduates of the college. Most interviews are held in February and March although they can be scheduled at any time during the year, depending on the employer's preference.

Job Search Workshops are held periodically to help students to develop effective resumes, interview techniques, and job hunting strategies.

Summer Job Placement Assistance is offered to help students locate summer employment. Most assistance consists of providing counseling and information resources, since only a small number of specific openings are received from employers.

Financial Aid

Scholarships are awarded to students in the college from endowment funds and annual donations that have been given to the college. The awards are made by the College Scholarship Committee on the basis of financial need and scholastic achievement and are coordinated with and are a part of the total financial package offered by the University's Office of Financial Aid.

A small loan fund is administered by the college through the Office of Student Affairs. The purpose of the fund is to provide a small amount of money to students facing short-term emergencies. The loans are interest free and are usually made for thirty, sixty, or ninety days.

Programs of Study

The curriculum emphasizes the biological and physical sciences and encompasses some fifty undergraduate specializations. The variety of programs offered in the college is in keeping with its mission "to increase our understanding of natural processes in the areas of agricultural sciences, biology, and the use of natural resources and the environment; to educate citizens for activity and leadership in these areas; and to translate new knowledge into action for the well-being of the people, their agriculture, their resources, and the communities in which they live."

The programs of study are grouped by areas of major academic effort in the college. Within each area, programs are designed to provide systematic development of basic skills and concepts and the opportunity for specialization in areas of particular interest to the student.

Program areas are planned with considerable flexibility, allowing students to prepare for careers, further graduate work, professional opportunities, and the responsibilities of educated citizens. The course requirements in each program area are different but all students must meet minimum distribution requirements of the college. Freshmen usually take introductory courses in biological science, physical science, mathematics, physical education, and the humanities as well as core courses in the program area or one or two elective courses.

A student may change program areas if there is room in the new area, if prerequisites are completed, and if the student has demonstrated interest and ability in the area. Requirements in each program are different and changes may lengthen the time required to graduate.

Agricultural and Biological Engineering

Agricultural and biological engineering links technology and engineering with the biological, social, and agricultural sciences. The Department of Agricultural Engineering offers students a choice of either agricultural engineering, agricultural technology, or environmental technology.

The agricultural engineering specialization is jointly administered by the New York State College of Agriculture and Life Sciences and the College of Engineering. The student transfers to the College of Engineering for one year and receives a Bachelor of Science degree from the College of Engineering if the graduation requirement of 127 credits has been fulfilled.

Students who complete the agricultural or environmental technology specializations receive a Bachelor of Science degree from the College of Agriculture and Life Sciences after completing 120 credits.

In agricultural and biological engineering students may study topics such as machinery, soil and water conservation; power and energy; structures and building design; bioengineering; community development; food engineering; construction and design of secondary roads; and the teaching of agricultural mechanization. Agricultural engineering is housed in Riley-Robb Hall, which has one of the most complete agricultural engineering facilities in the United States.

Agricultural Engineering is intended for the student who is particularly interested in the theoretical and fundamental aspects of engineering required for design and research. The student must have a strong aptitude for mathematics and physical sciences and high motivation. Biological, social, and agricultural sciences are integrated in this specialization but the physical sciences predominate.

Students may choose from several different areas, including agricultural waste management; bioengineering; community development; food engineering; livestock engineering; machinery; materials handling and processing; power and engineering; design and construction of secondary roads; soil and water management; and structures and the environment. Students whose interests are more general need not specialize.

Students select their courses in consultation with their faculty advisers in the Department of Agricultural Engineering and may choose courses to fulfill the remaining credits required for graduation with considerable latitude.

The agricultural engineering specialization provides excellent preparation for a wide variety of jobs in most industries that serve agriculture. For example, graduating engineers have taken jobs dealing with design, consulting, project leadership, or field testing. Future jobs are only limited by the individual's desire and motivation. Qualified graduates may also continue study in a Master of Engineering, Master of Science, or doctoral degree program.

The program is accredited by the Engineer's Council for Professional Development (ECPD).

Agricultural Technology offers the student opportunities to take courses in such areas as agronomy, agricultural economics, natural resources, and animal science as well as plant physiology, food science, genetics, and microbiology. The emphasis is on technical nonengineering aspects of the production of food, feed, and fiber.

Some of the interest areas offered are the teaching of agricultural mechanization; power and machinery; soil and water management; and structures and the environment. Students may also prepare for work in cooperative extension. Each of these areas has a slightly different series of courses. Courses are selected by the student in consultation with his or her faculty adviser.

Jobs taken by graduates from the agricultural technology specialization depend on individual interests and background. Some find employment as technical sales and service representatives, farmers, teachers in agricultural mechanization, or cooperative extension agents while others pursue graduate study before seeking employment.

Environmental Technology is intended to provide students with the capability of developing technological solutions to environmental quality problems. The specialization combines basic training in physical and biological sciences, ecology, and environmental quality with a selection of courses oriented toward technical problem solving. A graduate from this area of specialization should have the ability to work with scientists and engineers in industry and governmental agencies on environmental planning, environmental impact studies, and pollution control or in sales, development, and research.

The specialization is directed toward students with applied science and mathematical interests who have concern for the quality of the environment and a desire to deal with environmental quality management problems from a technological perspective.

The courses listed below are required of all students in the specialization.

Biology	Bio S 109, 110, or 101-104
Calculus	Math 111, 112; Math 214-215-216-218 (4 credits) is recommended for students who wish to attend graduate school.
Chemistry	Chem 103-104 or 207-208
Physics	Phys 101-102 or 207-208
Computer Science	Ag En 151

Students have the option of concentrating on environmental sciences and technology; environmental quality and society; or waste management.

Animal Science

In animal science basic and biological sciences are applied to animal industries to increase the supply of food and other products by animals. The program is offered jointly by the Departments of Animal Science and Poultry Science. Students in this program area study the breeding, care, and production of dairy and beef cattle, horses, poultry, pigs, and sheep.

The animal science program has excellent facilities for housing animals and modern, well-equipped laboratories and classrooms. Production courses are designed to provide some practical experience in animal production. Many species of animals are used for study and research, including dairy and beef cattle, horses, sheep, swine, chickens, turkeys, ducks, mink, dogs, rabbits, rats, hamsters, guinea pigs, goats, and turtles.

In animal science students take both basic and applied courses and with their advisers develop a curriculum that may include courses in animal nutrition, animal breeding and genetics, animal physiology, meat science, and dairy cattle, livestock, and poultry production. Students wanting to enter veterinary college or graduate school take additional courses in chemistry, physics, biochemistry, microbiology, and mathematics.

Students can specialize in dairy, poultry, and livestock production; animal breeding and genetics; meat science; animal physiology; and animal nutrition. In consultation with their advisers students may select sequences of courses tailored to their own interests. Students may prepare for careers in animal production or as technicians. Students whose interests and abilities warrant it usually are urged to emphasize the basic physical and biological sciences. This emphasis provides preparation for graduate study, admission to veterinary college, or careers in teaching or research in the more specialized disciplines of animal science.

Students are required to take a minimum of 25 credits in animal science. This includes 12 credits in basic courses, 6 credits in animal or poultry production, and 6 credits in advanced courses. Work experience is highly recommended.

Students preparing for graduate or advanced professional work in animal science should take upper-division courses in chemistry and biochemistry and animal science courses in cytogenetics or animal breeding, forages, meats, swine or sheep, dairy cattle, artificial insemination, lactation, nutrition, and endocrinology.

Applied Economics and Business Management

Agriculture, the food industry, and natural resources development can significantly influence the national economy. Rapid changes in these areas often create economic problems. Persons trained in applied economics and business management in the Department of Agricultural Economics are equipped to help solve these problems.

In applied economics and business management students may choose from six specializations: (1) business management and marketing; (2) farm business management and finance; (3) food industry management; (4) public affairs management; (5) resource economics;

and (6) agricultural economics. The department's course offerings are supplemented with others in related areas such as economics, rural sociology, animal science, government, industrial and labor relations, hotel administration, consumer economics, vegetable crops, natural resources, mathematics, and statistics.

Students with outstanding academic records may apply to register in both the College of Agriculture and Life Sciences and the Graduate School of Business and Public Administration in their senior year in order to receive a master's degree at the end of the fifth academic year. For more information, students should contact the School Admissions Office, 315 Malott Hall (telephone 256-2327), well in advance.

Business Management and Marketing applies the principles of economics and the tools of management to prepare students for careers in business. Special emphasis is given to developing decision-making skills and to the study of the structure and practices of business institutions. Market analysis, sales, banking, merchandising, and production management are fields for which students may prepare.

Farm Business Management and Finance is intended for students with farm experience who are interested in farming or in preparing for work in farm management or farm finance. Recent graduates have taken jobs as farm operators, farm loan managers, cooperative extension agents, and financial managers of farm cooperatives.

Food Industry Management is designed for students interested in management or sales positions with the processing, manufacturing, or distribution segments of the food industry. This training has prepared students for positions in the food industry such as produce buyer for a corporate chain; supermarket manager; training director for a food chain; and sales representative for a food manufacturer.

Public Affairs Management integrates a wide range of subject areas designed to familiarize students with the nature of public affairs and to develop their understanding of the managerial complexities created by the interaction of economic factors and social and political institutions. Students supplement work in the department with courses in economics, sociology, history, and government.

Resource Economics is intended for students interested in the application of the principles of economics to problems, both public and private, involving natural and human resources. Diverse employment opportunities include positions such as legislative adviser, economic adviser, and regional economist.

Agricultural Economics provides a general program in the economics of the agricultural sector. It is an appropriate major for those students who want (1) to survey offerings in agricultural economics, such as management, marketing, economic development, policy and resource economics; and (2) to prepare for graduate work in agricultural economics.

Biological Sciences

Biology has become an extremely popular subject at many universities for a variety of reasons: it is a science that is in an explosive phase of exciting development; it prepares

students for careers in challenging and appealing areas such as human and veterinary medicine and environmental sciences; and it deals with the inherently interesting questions that arise when we seek to understand ourselves and the living world around us. Many of the decisions we face today deal with the opportunities and problems that biology has put before us.

At Cornell the program of study in biology is offered by the Division of Biological Sciences to students enrolled in either the College of Agriculture and Life Sciences or the College of Arts and Sciences.

The biology program is designed to enable students to acquire necessary scientific foundations, to become familiar with different aspects of modern biology, and to concentrate in a specific area of biology. Areas of concentration include animal physiology and anatomy; biochemistry; botany; cell biology; ecology, systematics, and evolution; genetics and development; or neurobiology and behavior. Special programs are available for qualified students with particular interests in areas such as marine biology, nutrition, general biology, or biophysics. For more detail see "Division of Biological Sciences."

Microbiology is a specialization for students who are interested in the basic nature of microorganisms or who may want to use their knowledge in some of the many applications of microbiology. The microbiology program provides training for technical positions in microbiology or preparation for graduate work in theoretical and applied microbiology in areas such as food, medicine, ecology, industry, and agriculture.

For a limited number of students who are selected for the clinical microbiology specialization, the senior year may be spent at Cornell Medical College and the New York Hospital or at another affiliate.

The courses listed below are required for a specialization in microbiology. The course of study requires concurrent course work in chemistry, physics, and mathematics and is designed to fulfill the requirements for accreditation by the American Academy of Microbiology. Most students specializing in microbiology elect additional courses, which are listed in *Cornell University: Description of Courses* and the *Announcement of the College of Veterinary Medicine*.

Biological Sciences: six credits of introductory biological science courses selected from: Bio S 101–103, 102–104, 105–106, or 109–110; plus Bio S 281, Genetics (required only for students intending to enter graduate work), or PI Br 225; and Bio S 330 or 331, Biochemistry.

Chemistry: introductory courses in general chemistry: 207–208 or 215–216. Courses in organic chemistry: 253–251, Elementary Organic Chemistry, and Introduction to Experimental Organic Chemistry; or 301, Experimental Chemistry; or 357–358–301, Introductory Organic Chemistry, and Experimental Chemistry.

Mathematics: 105–106, Finite Mathematics, and Calculus for Biologists; or 107–108, Finite Mathematics for Biological and Social Sciences, and Calculus with Applications to the Biological and Social Sciences; or 111–112, Calculus; or 111–122, Calculus.

Microbiology: 290 and 291, General Microbiology, lecture and laboratory; one of the course sequences listed below; plus two additional microbiology courses.

Micro 390–391 Advanced General Microbiology
Micro 392–292 Advanced General Microbiology
Micro 394–395 Food Microbiology
Micro 490–491 Microbial Physiology
Bio S 485–487 Microbial Genetics
Vet M 316–317 Pathogenic Microbiology
Vet M 315–317 Immunology and Pathogenic Microbiology

Physics: 101–102, General Physics, or 207–208, Fundamentals of Physics.

Students may prepare for a number of specializations, including food microbiology and pharmaceutical and industrial microbiology; prepare for graduate study; or pursue preveterinary, premedical and predoctoral programs of study after completing the core requirements.

Nutritional Sciences The Division of Nutritional Sciences is an intercollege unit administered jointly by the College of Human Ecology and the College of Agriculture and Life Sciences. The division coordinates and unifies undergraduate teaching, graduate training, research, and extension activities related to nutritional sciences. Students in the College of Agriculture and Life Sciences may develop a nutritional science concentration.

Nutritional sciences deals with the interrelationships of food, nutrition, and health. World and national problems in the field range from hunger and malnutrition to overnutrition. The study of nutrition involves understanding everything from basic biochemical processes of cellular metabolism to the societal significance of food. Students wishing to develop a concentration in nutritional science take courses in the physical and biological sciences, in human nutrition and food, and in social and behavioral sciences. For more information see "Division of Nutritional Sciences."

Behavioral and Social Sciences

The behavioral and social sciences (BASS) program area focuses on people: how they behave, how they communicate, how they learn and change. Knowledge about people can be used to help increase food production in a developing country, encourage natural resource conservation, show an advertiser how to reach an audience effectively, help an adult learn to read, or develop more effective community governments.

Students learn to communicate effectively by studying communication theory, broadcasting, advertising, the mass media, and writing. They may prepare to teach agriculture, work in environmental or science education centers, or study the educational process. Students study the social forces affecting national and international development, and how groups work in rural societies. The general BASS specialization is for students wanting a strong multidisciplinary background. For example, a student preparing for rural community development work might emphasize both organizational and educational processes.

Most BASS students take a common core of three courses: introductory psychology, introduction to sociology, and the theory of human communication. Students can then develop their own programs with course work from the Departments of Communication Arts, Education, and Rural Sociology and from sociology, psychology, and human development and family studies.

General Behavioral and Social Science is a highly flexible program for students concerned about discovering and applying knowledge for the improvement of people, their society, and their environment in domestic and international settings. It is particularly well suited for students with goals related to the acquisition and transmission of knowledge and interest in social organizations and institutions. A program broadly based on the study of education, communication, and sociology, rather than on only one of these areas, may be most appropriate to a student with such goals.

Incoming students in this program may elect to shift to programs that emphasize communication; education and teaching; or rural sociology during their early semesters. They may also choose to remain in the general behavioral and social science area, tailoring their program to their particular goals.

Each student is expected to complete at least 24 credits in the Departments of Communication Arts, Education, and Rural Sociology. This must include Rural Sociology 100, Communication Arts 200, and Education 110. No more than 9 of the remaining 15 credits can be taken in any one department. Students are encouraged to round out their programs with electives from the BASS departments or related areas such as sociology, psychology, human development, or community service education.

Agricultural Education is intended for students who have good academic ability, experience in agriculture, and an interest in youth and young adults who would like to study agriculture. The ability to work and get along with people is essential. The fields of specialization within agricultural teaching are agricultural business, agricultural mechanization, conservation, farm production and management, horse handling and care, ornamental horticulture, and small animal science.

Requirements for Teacher Certification For a provisional certificate, the candidate must complete an approved curriculum leading to the baccalaureate degree, including the following requirements.

- 1) Six semester credits each are required in agricultural economics, agricultural engineering, crops and soil science, and electives in technical agriculture. To receive a validating certificate in a particular field, 12 semester credits are required in one of the following: agricultural business; agricultural mechanization; natural resources; farm production and management; ornamental horticulture; small animal science; or horse handling and care. The remaining 12 credits of course work may be taken in any of the departments of the College of Agriculture and Life Sciences except education.
- 2) Candidates must complete 18 semester credits in professional education courses approved for public school teaching of agriculture. Included in these credits must be (a) 8–10 semester credits in the body of knowledge which establishes the social, philosophical, and psychological foundations of educational theory and practice; and (b) 8–10 semester credits in skills, including methods and materials of teaching the subject for which certification is sought, and supervised observation and practice teaching.

Communication Arts Students study the fundamentals of communication theory and the most effective means of adapting this theory to written, interpersonal, audio, and visual communication. The curriculum is based on a strong foundation in the agricultural and life sciences and the humanities. Communication courses are carefully integrated with those in other disciplines to provide a variety of intellectual, cultural, and social perspectives. Students are strongly urged to seek practical experience.

Each student is expected to complete at least 29 credits in communication arts. Required courses are: 150, Writing for Media; 200, Theory of Communication; 215, Introduction to Mass Media; 230, Visual Communication; 301, Oral Communication; 311, Radio and Television Communication; 401, Communication Law; and 420 or 421, Media Laboratory (restricted to juniors and seniors in the specialization). Students select at least two communication arts courses from: 413, Magazine Writing; 314, Technical and Scientific Writing and Editing; 315, News Writing and Analysis; 318, Radio Writing and Production; and 319, Television Writing and Production.

Education provides students with concepts and competencies necessary to analyze educational situations critically and to plan, implement, and evaluate changes in educational programs. The core consists of (1) an introductory course designed to expose students to significant aspects of education that pervade any educational situation; (2) two courses designed to present basic approaches to the disciplined study of education; (3) a laboratory experience in the field designed to enable the student to test some of the conceptualizations and skills gained; (4) at least four courses chosen to extend the student's knowledge in a direction compatible with career aspirations. This program does not provide teacher certification. Students completing the specialization either seek positions in businesses or industries conducting education programs or specialize further at the graduate level.

Students must complete the college distribution requirements and the minimum 55 statutory college electives. An academic concentration is recommended. Education 110, Rural Sociology 100, Communication Arts 200, and Agricultural Economics 150 are recommended courses but are not part of the specialization.

For the education specialization each student, in consultation with his or her adviser, will plan a program of 24 credits in education using the distribution guidelines below.

- 1) One education course selected from 240, The Art of Teaching, or 270, Educational Studies.
- 2) Two courses selected from 311, Educational Psychology; 312, Learning to Learn; 317, Psychology of Adolescence; 371, Sociology of Education; 472, Philosophy of Education; 473, Contemporary Philosophy of Education; and 475, Political and Social Philosophy of Education.
- 3) Field experience under the direct supervision of the student's adviser (or some other supervisor) may be noncredit or obtained by taking a general department course, but is required.

- 4) Twelve to 15 credits or electives will be chosen by the student and the adviser from upper-division courses in education. These courses allow students to concentrate on a particular area or pursue special interests.

The Environmental Education Option is intended to produce professional interpreters, writers, or administrators for positions in environmental centers, museums, school systems, governmental agencies, youth organizations, private conservation organizations, or industrial groups. Each student will take about 50 credits in basic sciences, including both the biological and the physical sciences; about 15 credits in education courses including psychology, interpretive methods, and theory of instruction; and additional credits in related courses such as environmental law, ethics, and economics.

While the programs of students may differ, each student is expected to show competence in understanding biological and physical interactions in the environment and in communicating these relationships to audiences of varying ages, in developing visual aids for this communication, in assisting in the public relations activities of centers, organizations, and agencies concerned with environmental quality and interpretation, and in transmitting ideas and reports through mass media.

Rural Sociology trains students with a view toward (1) preparing them for graduate work in rural sociology or (2) providing the necessary undergraduate training for certain occupations for which sociology is a theoretical or methodological base. Each student specializes in rural social organization and development; theory and policy; or methods and analysis.

Each student must complete 24 credits of courses in rural sociology and a 3-credit course in statistics. Required rural sociology courses are 100, Introduction to Sociology; 105, Rural Sociology and World Development; 213, Introductory Research Methods; and 356, Rural Society in America.

Environmental Studies

The study of the environment and man's interaction with it is a vigorous and challenging area. The strategy for developing reasonable solutions to environmental problems requires a strong base of scientific, ecological, and technical knowledge, the ability to understand the natural environment, and the ability to estimate the effect of man's interaction with the environment. New tools and techniques borrowed from all areas of science and technology are being applied to the solution of environmental problems.

The areas of specialization are sponsored by the Departments of Agronomy, Entomology, Floriculture and Ornamental Horticulture, and Natural Resources.

Atmospheric Sciences provides students with the basic principles of meteorology and the knowledge needed to understand environmental problems related to the atmosphere. The program includes practical and theoretical aspects of meteorology and climatology. Graduates from this area of specialization should have the training necessary to work in national agencies, state environmental groups, and private industry.

Entomology offers students an opportunity to adapt their area of specialization to any of a variety of interests. Many students in entomology anticipate graduate training and

find a broad range of courses available to them. Others may discover many courses related to entomology in applied agriculture useful for the career they are planning.

Courses in basic and applied subjects are offered. A student emphasizing science takes three entomology courses which provide a general basis for future study: 212, Insect Biology; 322, Insect Morphology; and 331, Introductory Insect Taxonomy. These courses are followed by two or more courses of special interest to the student. A minimum of 15 credits in entomology is required. At the same time, students are urged to acquire a strong background in the basic sciences to complement the distribution requirements of the College of Agriculture and Life Sciences.

Those who do not anticipate graduate training are urged to select electives from departmental, college, and University offerings of immediate value in the career planned. Students who will continue their formal education beyond the bachelor's degree should acquire a broader basis for continued studies. Related areas from which students may select electives are agronomy, biochemistry, communication arts, education, ecology, geology, meteorology, natural resources, plant sciences, and statistics.

Environmental Horticulture applies the science and art of horticulture and the functional use of plants to problems and solutions in the environment and its enhancement, maintenance, and interaction with man. This specialization is intended for students who are interested in the areas listed below.

- 1) Horticultural industries that have direct interest in the environment including landscape nurserymen, landscape contractors, landscape maintenance personnel, arborists, and golf course superintendents and those who service these industries in finance, insurance, communication, supplies, and management.
- 2) The development and implementation of environmental public policies. This could include members of a team concerned with solving environmental problems and developing environmental impact statements, consultants to municipalities and parks, and those engaged in policy determination and regulation, including environmental law.
- 3) The environment within the academic framework, such as teaching, research, and continuing education in schools, universities, botanical gardens and arboreta, cooperative extension, and industry.

Training for the public policy-oriented horticulturist will emphasize additional courses in engineering, architecture, public policy, and resource analysis.

Landscape Architecture The Landscape Architecture Undergraduate Program is a four-year professional program leading to a Bachelor of Science degree. The program is accredited by The American Society of Landscape Architects and by the State Board for Landscape Architecture of the New York State Education Department. A graduate program leading to a Master of Landscape Architecture degree (M.L.A.) is described in the *Announcement of the Graduate School*.

Landscape Architecture is a licensed profession in most states. In New York State both the practice of landscape architecture and the use of the title *landscape architect* are

restricted by law. Qualifications for licensing include completion of an accredited educational program in landscape architecture, completion of a specified period of approved professional work experience, and passing a comprehensive state licensing examination.

There are approximately twenty thousand landscape architects practicing in the United States. Employment opportunities continue to increase in the offices of private practitioners, multidisciplinary offices, firms which both design and construct commissions, and public agencies at all levels.

The curriculum in landscape architecture is centered around a three-year sequence of design studio courses which begins in the fall semester of the sophomore year. Each class moves through the entire sequence as a group and the learning process is enhanced by student interaction. Studio teaching methods involve faculty and students in a one-to-one relationship. Each student is assigned a studio space for the year and studios are accessible at all times.

Basic to the curriculum is concern for the creation of environments that meet complex social needs and are ecologically sound and aesthetically pleasing. Studio courses deal with the application of design methods and principles that reflect knowledge and appreciation of land, water, plants, and the built environment in planning and designing land areas for public and private use.

Core courses in conceptual design, plant materials, landscape history and theory, landscape planning, landscape materials and construction, planting design, graphics, and natural sciences are required throughout the four-year curriculum. Requirements for the specialization total 57 credits, almost half of the total required for graduation. The college distribution requirement assures every student a broad academic base, and the 18 or more elective credits permit supplementary interests or special areas to be explored.

Natural Resources has an undergraduate curriculum designed to provide an enduring and broadly applicable education. Early specialization is usually undesirable because most students redefine or more sharply define their goals during their four years of undergraduate study. In addition, five or six years of college-level work are now needed to achieve professional competence as a natural resource scientist. The curriculum helps prepare students for many useful endeavors and can serve as a base for graduate work in numerous fields by preparing students to appreciate and understand their natural environment and man's impact on it; providing a foundation for those students who decide to continue with postgraduate professional training in natural resource conservation, wildlife science, aquatic science, and fishery science; and by offering specialized programs in terrestrial and aquatic sciences including general land use and wildlife and fishery management for those who wish to qualify for entry-level positions with natural resources agencies. Students should seek relevant experience to complement their academic studies.

Students are encouraged to pursue study in each of the eight learning areas listed below. In some areas, a minimum of four to six courses may be recommended by the student's adviser.

- 1) *Understanding basic substrates for life:* earth science, geology, soils, meteorology, energy, ecology, limnology, and oceanography
- 2) *Understanding natural processes:* chemistry, physics, ecology, field natural history, genetics, and biochemistry
- 3) *Understanding how organisms function:* biology, physiology, anatomy, biochemistry, genetics, behavior, and field natural history
- 4) *Understanding how people function:* psychology (how individuals function); sociology (how groups function); politics, government, history, anthropology, law, and economics (how institutions, societies, and cultures function)
- 5) *Identifying and measuring the environment:* taxonomy, resource inventory, and air photo interpretation
- 6) *Learning and developing basic life skills:* physical education, creative arts, appreciative arts, and communication (reading, writing, speaking, listening, thinking, making decisions, logic, planning, philosophy, and ethics)
- 7) *Learning special skills:* mathematics, statistics, computer science, foreign languages, resource management, air photo interpretation, law, engineering, and photography
- 8) *Learning about the world:* Students should recognize that not all learning takes place in the classroom. Exploring different careers, reading widely, participating in campus and community activities, or developing a research project for independent study all contribute to continuing growth.

For students who wish to specialize further, natural resources offers a variety of options.

The Aquatic Science Option is intended to meet the needs of two groups of students: (1) those who wish to pursue a career concerned with the biological aspects of freshwater or marine systems and (2) those who wish to become acquainted with the aquatic environment only as a matter of general interest. Students with specific career interests should regard their undergraduate training as preprofessional and should prepare for further study at the graduate level. Employment opportunities are limited for persons having only a bachelor's degree. Even for those with advanced degrees, appropriate jobs are not plentiful although prospects look somewhat brighter for the future. Currently environmental impact assessment and research constitute the areas where employment possibilities for aquatic scientists are the greatest.

The basic sciences are stressed during the first two years. As juniors and seniors, students choose from a broad array of electives devoted to the aquatic sciences. Courses that should be fitted into the natural resources curriculum include Aquatic Plant Management, Aquatic Microbiology, Aquatic Chemistry, Geological Oceanography, Biology of Fishes, and Fishery Science. Many students also elect to take one of the aquatic field courses offered during the

summer by Cornell and other institutions. Numerous lakes and streams in the vicinity provide students with a variety of opportunities for research and fieldwork.

The Fishery Science Option applies scientific knowledge to optimize fish production for recreational or commercial purposes. The fishery science curriculum is designed to provide a broad educational experience while at the same time preparing the student for employment as a fishery scientist or for graduate-level training. The growing interest in fisheries work has increased competition for jobs and admission to programs of graduate study. Job opportunities are limited but available. Graduates have generally been employed by state or federal agencies but there are increasing numbers of employment opportunities for fishery biologists with consulting groups. Higher-level jobs are generally limited to persons with graduate degrees.

Basic sciences and mathematics are necessary background for the core courses in fishery management, fishery science, and fishery techniques. Students may choose from a wide variety of related courses. The close proximity of Cayuga Lake and numerous streams and ponds provide areas for studying natural communities. These are supplemented by various indoor research and training facilities at the Cornell Fishery Laboratory. Research and work experience opportunities are also provided by field stations at Oneida Lake and in the Adirondacks.

Students taking the fishery science option should fulfill the minimum course requirements listed below.

- 1) Mathematics, including a calculus sequence; courses in geology and soils; biochemistry or an additional chemistry course; and a course in resource economics.
- 2) Courses in vertebrate biology, animal physiology, genetics, invertebrate zoology or entomology, limnology, and managing aquatic environments.
- 3) Fishery resource management, fishery science, fishery techniques, biology of fishes, and aquaculture courses.

The Forestry Science Option is intended to provide a basic education in natural sciences with emphasis on plant biology rounded out with forestry courses. Students gain preparation for graduate studies in forestry specializations such as forest soils, forest pathology, forest ecology, forest entomology, forest and wildlife relations, and forest hydrology. It is not designed as a terminal program leading to professional employment in forestry. Cornell is *not* accredited by the Society of American Foresters. Students seeking professional employment in forest management after the baccalaureate degree, as well as those interested in forest utilization, forest engineering, forest chemistry, or a related area should consider entering one of the accredited undergraduate schools.

The basic sciences are stressed in the first two years. As juniors and seniors students may select from a substantial array of courses in intermediate plant science, ecology, wildlife, soils, forestry, and resource analysis and inventory. Numerous woodland areas exist close to the campus and the forestry facilities include the four-thousand acre Arnot Teaching and Research Forest.

In order to specialize in forest science the following courses should be fitted into the natural resources curriculum.

- 1) Courses in calculus, geology, soils, and biochemistry or organic chemistry.
- 2) Courses in plant biology, plant physiology, field biology, and entomology.
- 3) Forest ecology, woodland management, and forest soils course work.
- 4) At least one course in wildlife or fisheries.
- 5) One forest-related course: air photo interpretation, inventorying natural resources, plant pathology, soil and water conservation, landscape architecture, or resource economics.

The Wildlife Science Option is intended for those who plan careers in the wildlife profession after completing a bachelor's degree or who plan to further their education at the graduate level. At present the number of students in this program exceeds the number of immediate employment opportunities.

The curriculum emphasizes basic courses in mathematics, chemistry, physics, biology, ecology, communications, social sciences, and resource management. The Department of Natural Resources offers courses in wildlife ecology, management, techniques, and policy, as well as related courses in aquatic ecology, fishery science, forestry and resource analysis and planning.

The Arnot Forest, Wildlife Ecology Laboratory, Montezuma National Wildlife Refuge, and the Richard E. Reynolds Game Farm are among the many facilities available for enrichment of the student's educational experiences. A Wildlife Research Unit, operated in cooperation with the U.S. Fish and Wildlife Service and the New York State Department of Environmental Conservation, provides additional training and research opportunities for both undergraduate and graduate students.

In wildlife science the following courses should be fitted into the natural resources curriculum:

- 1) Courses in calculus, statistics, biochemistry, and genetics.
- 2) Introductory field biology, general botany, plant taxonomy, and plant ecology courses.
- 3) Courses in vertebrate biology, physiology, animal nutrition, and mammalogy or ornithology.
- 4) Wildlife science courses in wildlife ecology, wildlife management, wildlife techniques, and wildlife policies.

Courses in waterfowl biology and habitat ecology are also offered and additional courses in forest ecology, fishery biology, and resource analysis and planning are available in the Department of Natural Resources.

Soil Science provides students with background in the basic principles of soil science and the capability of solving soil problems taking into consideration the soil's use and environment. The program combines basic training in physical and biological sciences along with a thorough background in agronomy.

Students take 15 credits in agronomy, 10 credits in the physical sciences, and 8 credits in the biological sciences.

Food Science

The food science program area is designed to provide students with basic skills and the knowledge necessary to ensure an adequate food supply. Students in this program take a core of fundamental courses and in consultation with faculty advisers select courses suitable for specific career objectives. The core curriculum includes basic courses in the physical and biological sciences followed by courses in the application of these sciences to the processing and distribution of a safe, nutritious, and economical food supply. Students may choose additional courses in chemistry, microbiology, or nutrition in preparation for careers in research and development; in mathematics and engineering for careers in processing and engineering; in marketing and business administration for careers in food plant management; or in a variety of production courses related to specific commodities. Emphasis may be placed on the international aspects of food science. Talented students may also include preparation for graduate study during their last two years in the program. The Department of Food Science operates a full-scale dairy plant and a cafeteria and has extensive laboratory facilities, all of which are available for training, research, and employment.

The undergraduate program in food science is designed to provide a foundation in all of the disciplines that are generally accepted as requisite for a Bachelor of Science degree in food science. Stress is on the skills and knowledge necessary to provide an adequate food supply to meet consumer needs.

During the first two years students take courses in biology, chemistry, physics, microbiology, and introductory food science as well as making progress in meeting general college requirements. During the last two years, students take courses dealing with the application of science and technology to the processing, preservation, distribution, and utilization of foods. The core is designed to meet minimum guidelines of the Institute of Food Technologists, the professional society of U.S. food scientists. The student thus has an opportunity to become well-prepared for a career in food science.

Students are strongly encouraged to obtain further competence in one or more areas of emphasis. Lists of recommended courses are available for many areas but the student is free to select courses for special objectives. The areas of emphasis include processing technology; food chemistry; nutritional aspects of processing; technology and management; dairy science; meat, poultry, and fish technology; food microbiology; and international food development.

The flexibility of the food science program allows students to prepare for a variety of positions in industry, government, or education. Some of the positions and areas of work commonly available to food scientists and technologists are food processing specialist, cooperative extension food specialist, food product development, quality control, process engineering, marketing, technical sales and service, food analysis, food inspection and grading, regulation, research, and teaching.

Some areas require graduate training, and it can be useful in others as well. Opportunities for graduate study exist at a number of universities, including Cornell.

Students are required to take Introductory Food Science, Introductory Nutrition, Food Analysis, Nutritional Aspects of Food Processing, Food Engineering, Sanitation and Public Health, Food Processing I and II, Food Chemistry, Sensory and Objective Evaluations of Foods, Food Microbiology, Food Chemistry laboratories, and Introductory Statistics.

Plant Sciences

Plants supply both humans and animals with food. They provide raw material for many industries, beautify the environment, and combat pollution. While the land available for plant production is relatively constant, the demands for plants and plant products increases as the world population grows. Consequently, the efficient production, processing, and marketing of plants is essential.

Plant science students may specialize in general plant science, plant breeding, plant pathology, plant protection, field crops, floriculture and horticulture, pomology, and vegetable crops. Student with well-defined interests may specialize when they enter the college. Others can start in the general plant sciences curriculum and, if desired, specialize after the second year.

Study in the plant sciences is offered jointly by the Departments of Agronomy; Floriculture and Ornamental Horticulture; Plant Breeding; Plant Pathology; Pomology; and Vegetable Crops.

General Plant Science is intended for students whose interest in studying plants has not yet centered on any one of the more specialized groups within the area. Students may continue with this option throughout their undergraduate years, particularly if they are likely to be interested in and qualified for advanced studies beyond the bachelor's degree. Students who plan to seek employment upon graduation may prefer to specialize. There are, however, opportunities for general plant science graduates in the service and supply industries, as extension agents, as teachers, and as research technicians.

There are no specific requirements for the general plant science specialization. More than a hundred courses are offered that deal directly with some area of plant science. Other courses relating to plant science are offered in agricultural meteorology, food science, and soil science. In addition, an interest in plant science can be combined with agricultural engineering, conservation, education, extension, marketing, statistics, international agriculture or some other area of specialization.

Undergraduates are encouraged to obtain practical experience. This may involve research under the direction of a faculty member or work in a commercial industry, research institute, or on a farm. The Department of Plant Pathology will assist students looking for positions that would provide useful experience.

Field Crops (Agronomy) Courses required for all students specializing in field crops (agronomy) include general biology, botany, plant physiology, general chemistry, organic chemistry, mathematics, crops, and soils. Students who anticipate a career in agricultural production or service after completion of the B.S. degree should take courses in crops, soils, crop physiology, agricultural economics, communications, plant pathology, entomology, nutrition, genetics, microbiology, and climatology. Students planning graduate or professional

study beyond the bachelor's degree should take advanced course work in biochemistry; botany; qualitative, quantitative, and experimental chemistry; calculus; physics; and statistics.

Floriculture and Ornamental Horticulture offers students the following options: greenhouse crop production; nursery crop production; landscape horticultural service; turfgrass management; arboriculture; retail floriculture and ornamental horticulture; landscape architecture; and ornamental horticultural science. Courses basic and fundamental to the general knowledge of floriculture and ornamental horticulture are given below and should be taken by all students. Each option has other recommended courses, usually taken in the junior and senior years.

The required core courses are Introductory Floriculture and Ornamental Horticulture; Taxonomy of Cultivated Plants; Woody Plant Materials; Herbaceous Plant Materials; Physiology of Floriculture Crops; Plant Physiology, lectures and laboratory; Nature and Properties of Soils; Introductory Plant Pathology, lectures and laboratory.

Plant Breeding provides undergraduates with (1) preparation for graduate study leading to advanced degrees in plant breeding and plant genetics; (2) preparation for work in producing and marketing of plant varieties and making varietal recommendations and for positions in seed analysis, regulation, and quality control.

In cooperation with an adviser, each student plans a curriculum with a concentration in basic sciences supplemented by courses in applied fields best suited to his or her individual goals. Options for students to choose from include plant breeding and plant genetics; genetics, cytology, and cytogenetics; mathematics (calculus) and statistics; organic chemistry and biochemistry; plant anatomy, ecology, and physiology; crop production; and plant pathology and disease control.

Plant Pathology requires broad training in the physical and biological sciences plus a general background in the area of crop production with emphasis on crop protection. Specific requirements depend upon the career the student is interested in, such as a mycological or microbiological technician; a biological research technician; a technical representative for agricultural industry; a cooperative extension agent; a plant protection technician; or a biology teacher. Students may also be interested in graduate work in plant pathology or some other area of biology.

A core of basic and applied courses is strongly suggested, including Chemistry 207–208 or 103–104; Mathematics 107–108 or 111–112; Physics 101–102; Biological Sciences 101–102, 103–104, 242 or 342 and 344, 244; Agronomy 200; Entomology 212 or 241; Plant Breeding 225 or Biological Sciences 281; Plant Pathology 300–301, 302, and 309; and one course chosen from Agronomy 111, Floriculture and Ornamental Horticulture 100, Pomology 101, or Vegetable Crops 103.

Plant Protection is a specialization offered for students who are interested in pest management for plant protection. The study of insects, diseases, weeds, vertebrate pests, and other factors that prevent maximum crop production may prepare students for careers in agribusiness, the agrichemical industry, cooperative extension, pest management consulting, state and federal regulatory work, and a variety of other technical positions. Although designed as a terminal program for students

desiring a practical preparation in general plant protection, this specialization may also provide an adequate background for graduate work in entomology, plant pathology, or weed science.

The following subjects are considered essential to the plant protection specialization: botany and plant physiology; general ecology; soils; crop science; and microbial ecology. Additional courses in introductory entomology; insect pest management; introductory plant pathology; plant disease control; weed science; and pest management for plant protection are recommended.¹ Students should plan to take a total of 62–70 hours in courses required and recommended for the specialization.

In addition, a number of other subjects pertinent to plant protection are recommended, depending upon the student's interests: agricultural economics; agricultural engineering; agronomy; biochemistry; communication arts; pathology and entomology; general physics; genetics; meteorology; mycology; pesticides in the environment; and plant anatomy. Employment involving practical experience in plant protection between the junior and senior years on a farm, at an experiment station, with an agrichemical company, or with a regulatory agency is encouraged.

Pomology provides students a choice of two options: pomology or fruit production. While the two programs are quite similar they are designed to meet the needs and interests of students preparing for two different lines of work. The pomology option is intended to provide students with somewhat more training in basic sciences in preparation for professional service with agencies concerned with fruit production and further study at the graduate level. The fruit production option is intended to meet the needs of students planning to operate or manage fruit farms or to engage in similar work.

<i>Recommended Courses</i>	<i>Fruit Production Option</i>	<i>Pomology Option</i>
Pomology	20 credits	20 credits
Biological sciences	8 credits	14 credits
Entomology	6 credits	3 credits
Plant pathology	4 credits	4 credits
Agricultural economics	11 credits	
Agricultural engineering	5 credits	
Plant breeding	4 credits	4 credits
Chemistry, physics, and mathematics*		20 credits

Vegetable Crops is one of the most diverse applied and scientific fields in agriculture. In New York more than twenty economically important vegetables are produced and marketed. Vegetable crops have a high value per acre, making it economically feasible to invest relatively large sums in land, equipment, fertilizers, seed, and pesticides. Many vegetables are highly perishable; consequently considerable expenditure is made for refrigeration and special storage facilities as well as for packaging and handling techniques that have been specifically developed for each particular crop.

The opportunities for trained personnel are numerous in all aspects of vegetable production and the closely related fields of purchasing, processing, merchandising, extension, and banking. Some students may continue their

*This course work is recommended in addition to courses taken to fulfill requirements of the college.

studies in graduate school in preparation for teaching, research, or cooperative extension work in colleges and universities or in private industry. Recently, there has been an increased interest in growing vegetables in tropical countries, and international agriculture, with a specialization in vegetable crops, provides excellent training for this vocation.

The different specialties within vegetable crops afford a very flexible curriculum. Courses are chosen by the student in consultation with an adviser and other members of the staff. Students usually take most of the courses offered by the Department of Vegetable Crops and commonly choose other courses from accounting, agricultural geography, and marketing; soils, soil fertility, and regional agriculture; plant biology, physiology, ecology, and anatomy; oral expression; food sciences; nutritional sciences; plant genetics, statistics, and plant breeding; economic entomology, plant diseases and their control, and weed science. Students supplement their course work with study in areas in which they have particular interest.

Special Academic Options

Some students are interested in pursuing a broad general education in agriculture and the life sciences. Others are interested in pursuing a specialized interest, while still others are uncertain about their career objectives. Such students, in cooperation with their faculty advisers, plan a course of study suited to their individual interests, abilities, and objectives. Independent study in areas outside of existing program areas can be planned with a faculty adviser. Information on these options is available in the Office of Student Affairs.

Cooperative Extension Students may prepare for cooperative extension careers in agricultural production, 4-H youth development, community development, and homes and grounds education. With the help of designated advisers, courses selected will meet requirements for (1) preparation in agricultural technology in a department of the college, and (2) preparation in social sciences, communications, and program methodology. A limited number of cooperative extension agent positions are filled from each year's graduating class.

Students desiring to prepare for extension careers in commercial agriculture will complete a two-part requirement.

- 1) Each student must complete 15 credits or more in oral communication, written communication, psychology, and sociology with at least one course in each area. Freshman Seminars may not be used to fulfill the written communication requirement. It is strongly suggested that students also complete courses in education, particularly in curriculum development and adult education.
- 2) Students choose one of the specializations listed below and will work with the adviser to schedule their course work. Each student must complete the requirements for a specialization.

Specialization	Adviser
Animal science and dairy production	R. Natzke
Farm business management and finance	G. Casler
Field crops and soil science	T. Scott
Floriculture and ornamental horticulture	G. Good
Pomology	L. Edgerton
Vegetable crops	W. Kelley

General Agriculture is a specialization for students interested in concentrating on production and technical courses in agriculture in advanced courses in the basic sciences. Students, with help from their adviser, will select a range of agricultural electives to provide a broad background of agricultural experience. The minimum course and distribution requirements for general agriculture are those required of all students in the college.

Students choose courses of study suited to their individual interests, abilities, and objectives: (1) for general education in agriculture or agricultural science; (2) for temporary classification to help them define vocational interests and goals; or (3) for independent study in a specialized field not encompassed by the existing program areas.

International Agriculture is intended to provide students with an understanding of the special problems of applying basic knowledge to the processes of agricultural modernization in low-income countries. The student typically specializes in a particular subject and works with an adviser to plan a program oriented toward international agriculture. The courses for secondary specialization in international agriculture are designed to acquaint students with the socioeconomic factors in agricultural development, with the physical and biological nature of tropical agriculture, with a foreign language, and with various world areas for which study programs exist.

Students must complete course requirements for an agricultural specialization and for a secondary specialization in international agriculture. Courses include Comparative Rural Societies, Economics of Agricultural Development, and electives in the physical and biological aspects of tropical agriculture (such as Geography and Appraisal of Soils of the Tropics; Livestock Production in the Warm Climates; and Tropical Agriculture); and world area studies.

Statistics and Biometry Statistics is concerned with the study, development, and application of design and measurement aspects of an investigation, summarizing facts from the data obtained, and making inferences from the facts. Biometry is concerned with the application of techniques of the mathematical sciences to biological phenomena and problems. Students with competence and interest in mathematics, ability in computer programming, and creativity and ingenuity will find this a challenging specialization.

Statisticians and biometricians may do mathematical research, teach, consult in academic and industrial research, do statistical computing, or engage in operations research, quality control, and systems analysis. Data collection and summarization is an increasingly important function of state and national government bureaus such as the Census Bureau and the Bureau of Labor Statistics. Opportunities in this field for careers or further graduate study are abundant, salaries are excellent, and many opportunities for self-employment exist.

Students have great flexibility in planning academic programs to achieve competence in statistics and biometry while taking a wide variety of other course work. The curriculum is based on a student's having or developing a thorough grasp of basic mathematics. Courses are also required in computer science, and students are

encouraged to take courses in applied disciplines such as agriculture, biology, economics, and the social sciences that involve numerical data and their interpretation.

Courses specifically required are Computer Science 100 (or Agricultural Engineering 304) and 211; Industrial and Labor Relations 310; Mathematics 191 or 111, 122 or 112 or 192, and 221–222 or 214–215–218; and Statistics and Biometry 200, 408–409, 416–417, 601–602, and 607. Recommended courses include Agricultural Economics 310; Agricultural Engineering 475; Computer Science 104, 107, 108, and 314; Mathematics 421–422 and 472; Operations Research and Industrial Engineering 320–321 or Agricultural Economics 412; Philosophy 231 or Mathematics 381; Statistics and Biometry 605, 606, and 662; and courses in quantitative methods in various disciplines. Work experience gained through summer employment or undergraduate teaching is highly recommended.

Teacher Preparation is provided through the behavioral and social sciences (BASS) program area's education specialization. For further information contact the Department of Education, 102 Stone Hall (telephone 256-4278).

Special Academic Opportunities

Dual College Programs

Agricultural Engineering Students interested in agricultural engineering may receive degrees from the College of Engineering if they fulfill program requirements. Students in the agricultural engineering specialization may consult their adviser for more information.

Business and Public Administration Students interested in entering a five-year dual degree program with the Graduate School of Business and Public Administration should contact the Admissions Office, 315 Malott Hall (telephone 256-2327). Since the program requires admission to the school and permission from the college, students should make their enquiries well in advance.

Ithaca College Full-time Cornell students may petition to enroll in courses at Ithaca College. Students pay full tuition at Cornell but pay only special course fees (if any are charged), at Ithaca College. Students may register for only one course each term at Ithaca College, up to a maximum of 12 credits in four years. Acceptance of Cornell students into Ithaca College courses is on a space-available basis.

New York State Assembly and Senate Internships

A limited number of session internships are available in the spring semester to sophomores, juniors, and seniors who are enrolled in the New York State College of Agriculture and Life Sciences. Students must arrange for academic credit for this experience through their adviser and enroll with the College Registrar. Further information about the internship programs may be obtained through the college's Career Planning and Placement Office.

Overseas Academic Programs

Several opportunities for study abroad are coordinated with the College of Agriculture and Life Sciences. These opportunities offer students a broadened educational program, a multicultural perspective, and possible new avenues of career development. Among the available study-abroad programs are two student exchange

programs with universities in Mexico and Sweden. Cooperative arrangements with the University of Reading in England and the University of Dublin in Ireland have enabled the college to endorse several students for a year of study under a tutor in those schools.

Students interested in these or other year-abroad programs may obtain additional information from the Office of Student Affairs. *Students in the exchange programs must petition for registration in absentia.* Credit received for academic work at any of these schools may then be transferred to meet graduation requirements at Cornell in the normal time period.

Mexican Exchange Program A student from the college is competitively selected in the freshman year to go to the Instituto Tecnológico y de Estudios Superiores de Monterrey during the junior year. The sophomore year is used to attain proficiency in the Spanish language. Scholarship assistance from Monterrey and Cornell provides a substantial portion of the costs of the program. A student from Monterrey attends Cornell University under similar arrangements each year.

Swedish Exchange Program The student selected to participate in the Swedish Exchange Program applies for it in the sophomore year and spends the junior year at the Agricultural College of Sweden at Uppsala. All essential expenses in Sweden, including a living allowance, are provided by a student group there. Round-trip air transportation must be paid by the exchange student. A student from the Agricultural College in Uppsala spends a year at Cornell University with support from the college and student groups here.

Year Abroad in England The college has an arrangement with the University of Reading whereby a few students are recommended to the faculty for admission for one year as occasional students. Students go in their junior year. All expenses are paid by the student, but total costs (including transportation) are less than at Cornell.

Year Abroad in Ireland For college students with majors in the biological sciences, a special year-abroad program has been established with the University of Dublin (Trinity College) in Ireland. A small number of Cornell students in genetics, microbiology, and biochemistry participate in the program each year. The program is similar to the Reading program with respect to finances.

College of Architecture, Art, and Planning

Administration

Kermit C. Parsons, Dean

Alexander Kira, Associate Dean for Administration and Student Records

Charles W. Pearman, Associate Dean for Admissions and Financial Aid

Henry W. Richardson, Associate Dean for Minority Student Affairs

Allan A. Lentini, Director of Administrative Services

M. Sophie Newhart, Registrar

Betty Gangle, Accountant

Margaret Webster, Slide Curator

Faculty Advisers

Freshmen are assigned faculty advisers for their first year and are also invited to share their concerns and seek advice from the volunteer student advisers at any time.

Upperclass students have no regular assigned advisers and are free to seek assistance and advice from the most appropriate faculty member or college officer.

Specific inquiries regarding rules, procedures, or deadlines should be addressed to:

Professor Kira, Associate Dean for Administration and Student Records

Professor Pearman, Associate Dean for Admissions and Financial Aids

Professor Richardson, Associate Dean for Minority Affairs

Ms. S. Newhart, College Registrar

Professor Schack, Chairman, Department of Architecture

Professor Blum, Chairman, Department of Art

Professor Saltzman, Chairman, City and Regional Planning

Degree Programs

	Degree	HEGIS Code
Architecture	B.Arch.	0202
City and Regional Planning	B.S.	0206
Design Communication	B.F.A.	0299
Fine Arts	B.F.A.	1002
History of Architecture and Urban Development	B.S.	0202
Policy Planning and Regional Analysis	B.S.	0206
Urban Planning and Development	B.S.	0206

The college offers programs leading to the bachelor's degree—the five-year program in architecture leads to the Bachelor of Architecture; four-year programs in art and architecture lead to the Bachelor of Fine Arts; and a four-year program with a concentration in city and regional planning leads to the Bachelor of Science.

Graduate-level programs are offered in art; architectural design and urban and regional design; architectural sciences; history of architecture and urban development; preservation planning; city and regional planning and related programs; and landscape architecture.

Students in each of these programs, working in physical proximity to one another, gain a broader understanding of their own special area of interest through contact with the students and faculty in other disciplines.

Early in its development the college set a limit on the number of students it would enroll and devised a selective method of admission. There are now more than 650 students and a full-time teaching staff of over sixty, supplemented by visiting teachers, part-time lecturers, and assistants. Teachers and students mix freely and much instruction and criticism is on an individual basis.

The college's courses are integral parts of the professional curricula. Fundamental subjects are taught by faculty members whose experience provides them with professional points of view. The concentration of professional courses within the college is balanced by the breadth of view gained from courses and informal learning in the rest of the University. The college is convinced that this breadth is an essential element of professional education. This conviction is evident in the form of the curriculum, the methods of teaching, and the extracurricular life of teachers and students.

Facilities

The college occupies Sibley Hall, Franklin Hall, part of Rand Hall, and the Foundry. In Sibley are the facilities for architecture and city and regional planning as well as the administrative offices and the Fine Arts Library. The Department of Art is housed in Franklin Hall. Sculpture and shop facilities are in the Foundry. The Green Dragon, a student lounge, is located in the basement of Sibley Hall. The college has three darkrooms which are available for general use and serve as photo labs for the photography courses. A darkroom fee must be paid by each user. Information about darkroom rules and regulations, hours, and equipment is available in the slide library.

Through the generosity of the late Mrs. Lillian P. Heller, the college has acquired the home of William H. Miller, the first student to enroll for the study of architecture at Cornell and later a practicing architect in Ithaca. This building is used to house visiting teachers and guests of the college and for occasional receptions and social events.

Libraries

The Fine Arts Library in Sibley Dome serves the College of Architecture, Art, and Planning through its collections on architecture, fine arts, and city and regional planning. The library, with more than 93,000 books, is capable of supporting undergraduate, graduate, and research programs. Some 1,600 serials are currently received and maintained.

A slide library is maintained in Sibley Hall containing extensive files of architectural history slides and a large and growing collection of slides of art and architecture from all parts of the world. The library now includes approximately 185,000 slides.

The facilities of the libraries of other schools and departments on campus and the Olin Library, designed primarily as a research library for graduate students, are also available.

Museums and Galleries

The Herbert F. Johnson Museum of Art was formally opened in May 1973. Although many of its exhibitions and activities relate directly to academic programs of the University, the museum has no administrative affiliation with any department. In this way, its programs freely cross academic boundaries, stimulating interchange among disciplines. With a strong and varied collection and a continuous series of high-quality exhibitions, it fulfills its mission as a new center for the visual arts at Cornell. Art galleries are also maintained in Willard Straight Hall, where loan exhibitions of paintings and graphic work by contemporary artists are held. Current work of students in the College of Architecture, Art, and Planning is shown in the exhibition areas in Sibley Hall and the gallery in Franklin Hall.

Admissions

All candidates for admission to the college must take the Scholastic Aptitude Test of the College Entrance Examination Board (CEEB) or submit American College Testing Program scores. Entrance credit on the basis of the school record will be granted only in those subjects in which the candidate has attained the college-recommending mark of the school.

Three years of a foreign language, ancient or modern, are required for entrance. Candidates who have less than three years of preparation in a foreign language, but who make a satisfactory score on a CEEB Achievement Test may meet the requirement. When the required language credit is not offered for admission, a letter of explanation of this deficiency must be sent to the Committee on Admissions for its consideration. If the applicant is admitted, the language requirement must be satisfied before graduation. If an applicant plans to continue in college the study of a language already begun, the College advises the student to take the CEEB Achievement Test in that language, since it is required for placement in the proper course. (See "Language Course Placement," p. 00.) Three college credits in a language are considered, for the purpose of making up the entrance requirement while in college, to be equivalent to one year of high school language credit.

Candidates for admission to the *Department of Architecture* must present sixteen secondary-school units, including four units of English, four units of mathematics, and three units of a foreign language (see above). Mathematics must include intermediate algebra, plane geometry, and trigonometry, taken either as separate courses or included within comprehensive mathematics courses. An acceptable course in physics, taken either in secondary school or in college, is required for graduation.

The program in architecture is professional in its objectives. Only those who are seriously interested in careers in architecture should make application for admission. Candidates for admission are advised to read professional literature, visit professional offices, talk with students of architecture or recent graduates, and otherwise inform themselves about the field. It is usually wise to resolve serious doubts by starting with a program of general education.

Candidates for admission to the *Department of Art* should present sixteen units, including four units of English, two units of college preparatory mathematics, and three units of

foreign language (see above). Remaining units should, in the main, consist of science and social studies (including history).

The program in art is preprofessional in objective. Those who are seriously interested in careers in painting, sculpture, or the graphic arts are the most logical candidates. Candidates for admission are advised to read art criticism and art history, to visit museums and galleries, and to otherwise inform themselves about the field of art. Art work done by the applicant, or slides thereof, should be presented at the time of the interview. Examples of class assignments, or independent work, or both, are acceptable. Prospective students who live outside the radius of the Boston-New York-Ithaca areas and cannot travel for personal interviews may write to the Department of Art to arrange for an interview with a Cornell graduate who lives in the prospective student's part of the country and in addition send to the Department of Art one unmounted 9" x 12" self-portrait in pencil, exactly ten selective slides of their work, and a brief statement of professional interest and purpose.

Transfer Students

A student who has already attended another institution of collegiate rank is admitted at the beginning of the fall term. Transfer applications are available from the Office of Admissions, 410 Thurston Avenue, Ithaca, New York 14850. Each applicant is required to meet all entrance requirements and to comply with the rules governing admission. In addition, the applicant should file with the Office of Admissions an official transcript of record of work at the institution already attended, together with a certificate of honorable dismissal. The applicant should be prepared to send, if requested, a catalog of that institution, marking the courses taken as listed in the transcript. The Scholastic Aptitude Test of the College Entrance Examination Board is required.

Special Students

In certain circumstances a person, especially one of comparative maturity, may, even without satisfying the entrance requirements, be admitted as a special student (not a candidate for a degree). Applicants must give evidence of ability to do creditable work in the college, and their applications for admission must be recommended by the department in which they propose to do the main part of their work. They must file applications with the Office of Admissions, 410 Thurston Avenue, Ithaca, New York 14850.

If a person who is admitted as a special student without satisfying the entrance requirements subsequently satisfies those requirements, he or she may be graduated under the ordinary regulations of the college.

College Academic Policies

Ownership of Student Work

All drawings, models, paintings, graphic art, and sculpture done in the studios and drafting rooms as a part of the instructional program are the property of the college until they have been graded and released by the instructor. Certain works may be selected by the college for retention for academic purposes.

Exhibitions of Student Work

Exhibitions of student work will be held each semester as part of the yearly schedule of the Franklin Hall and Sibley Dome Galleries. These may display the work of a specific course or exhibit examples of the best recent work done.

Scholastic Standards

Term by term, a candidate for an undergraduate degree in this college is required to pass all courses in which the student is registered and have a weighted average for the term of not less than C (2.0). The record of each student who falls below the standard will be reviewed by the Student Records Committee for appropriate action, as described below:

- 1) *Warning* means that the student's performance is not up to expectations. Unless improvement is shown in the subsequent term, the student may be placed on final warning or may be suspended.
- 2) *Final Warning* indicates that the student's record is unsatisfactory. Unless considerable improvement is shown in the subsequent term, the student is subject to dismissal from the college.
- 3) *Suspended: Academic Deficiency* The student is dismissed from the college and may not continue studies in the college. A student who has been suspended may apply for readmission after an absence of at least two semesters. Application for readmission is made by letter, addressed to the Associate Dean of Admissions, College of Architecture, Art, and Planning. The student must submit evidence that his other time has been well spent since suspension, and, if employed, must submit a letter from an immediate superior. Readmission to the college after being suspended is at the discretion of the Admissions Committee.
- 4) *Dismissed: May Not Reregister, College of Architecture, Art, and Planning* The student is dismissed from the college and is permanently prohibited from continuing studies in it. This dismissal does not preclude the possibility of applying for admission to another division of the University.

The above actions are not necessarily sequential. A student who has received a warning may be suspended for academic deficiency at the end of the next term if the performance during that term is deemed to be grossly deficient.

It is necessary to have a cumulative average of at least C- (1.7) for graduation.

Architecture

Professional Degree Program

The first professional degree in architecture is the Bachelor of Architecture. This degree counts towards the professional registration requirements established by the various states and the National Council of Architectural Registration Boards. The professional program is normally five years in length and is designed particularly for people who, before they applied, had established their interest and motivation to enter the field. It therefore incorporates both a general and professional educational base.

The program is oriented towards developing the student's ability to deal creatively with architectural problems on analytical, conceptual, and developmental levels. The sequence courses in design, consisting of studio work augmented by lectures and seminars dealing with theory and method, are the core of the program. Sequences of studies in human behavior, environmental science, structures, and building technology provide a base for the work in design.

In the first three years, the student has the opportunity to establish a foundation in the humanities and sciences through electives. During the fourth and fifth years, this base may expand and be applied by further studies in these areas. Within the professional program, a basis for understanding architecture in its contemporary and historical cultural context is established.

The structure of the program incorporates considerable flexibility for the individual student to pursue his or her particular interest in the fourth and fifth years. By carefully planning options and electives in the fifth year, it is possible for a qualified student to apply the last year's work toward the Bachelor of Architecture degree also to one of the graduate programs offered in the department. Some students are then able to complete the requirements for the master's degree in one additional year.

Washington, D. C., Semester One option open to fourth- and fifth-year students is a term in the department's program in Washington, D. C. The program includes a design studio, lectures, seminars, and fieldwork oriented to a major metropolitan area; courses in professional practice and thesis programming are also offered. In addition, students have an opportunity to take elective courses at institutions in the Washington, D. C., area.

Curriculum

First Year

	Credits
101 Design I	3
131 Introduction to Architecture	2
141 History of Architecture	3
151 Design Fundamentals I	2
191 Analytical Drawing I	2
Out-of-college elective	3
	15

Spring Term

102 Design II	3
142 History of Architecture	3
152 Design Fundamentals II	2
162 Introduction to Social Science in Design	2
192 Analytical Drawing II	3
Out-of-college elective	3
	15

Second Year

Fall Term

201 Design III	4
221 Mathematical Techniques	3
231 Architectural Elements and Principles	3
261 Introduction to Environmental Science	2
College elective	3
Out-of-college elective	3
	18

<i>Spring Term</i>	<i>Credits</i>
202 Design IV	4
222 Structural Concepts	4
232 Design Methods and Programming	3
262 Building Technology, Materials, and Methods	3
Out-of-college elective	3
	<hr/>
	17

Third Year

<i>Fall Term</i>	
301 Design V	6
321 Structural Systems I	3
361 Environmental Controls I	3
Departmental elective	3
Out-of-college elective	3
	<hr/>
	18

<i>Spring Term</i>	
302 Design VI	6
322 Structural Systems II	3
362 Environmental Controls II	2
Departmental elective	3
Out-of-college elective	3
	<hr/>
	17

Fourth Year

<i>Fall Term</i>	
401 Design VII	6
481 Professional Practice	2
Departmental elective	3
College elective	3
Out-of-college elective	3
	<hr/>
	17

<i>Spring Term</i>	
402 Design VIII	6
482 Professional Practice	2
Departmental elective	3
College or out-of-college elective	3
Out-of-college elective	3
	<hr/>
	17

Fifth Year

<i>Fall Term</i>	
501 Design IX; 503 Design IX – Thesis I; or 601 Special Program	8 or 9
510 Thesis Introduction	2
630 Advanced Seminar in Architecture	1
Departmental elective	3
Out-of-college elective	3
	<hr/>
	17 or 18

<i>Spring Term</i>	
502 Design X – Thesis; 504 Design X – Thesis; or 602 Special Program	8 or 9
631 Advanced Seminar in Architecture	1
Departmental elective	3
College or out-of-college elective	3
College or out-of-college elective	3
	<hr/>
	18 or 19

Total credits 169

Elective Distribution Requirements

	<i>Credits</i>
Departmental electives	18
College electives	6
College or out-of-college electives	9
Out-of-college electives	27
Total electives	<hr/>
	60

Departmental Elective Distribution Requirements

	<i>Credits</i>
History of architecture courses	6
Principles, theories, and methods and nonsequence design courses	6
Design communications or computer graphics course	3
Architectural science course	3

<i>College Elective Distribution Requirements</i>	<i>Credits</i>
Art course	3
Planning course	3

Out-of-College Elective Distribution Requirements

	<i>Credits</i>
Mathematics, physics, or biological sciences course	3
Humanities courses	6
Social science courses	6

Degree Option

After the completion of the first four years of credit requirements, the student can opt to receive the nonprofessional degree Bachelor of Fine Arts (B.F.A.) in architecture or Bachelor of Science (B.S.) in urban planning and development of policy planning and regional analysis.

Transfer Students

Although the program leading to the Bachelor of Architecture is specifically directed to those who are strongly motivated to begin professional study when entering college, it is sufficiently flexible to allow students to transfer who have not made this decision until after they have been in another program for one or two years. Individuals who have already completed an undergraduate degree must also apply to transfer to the Bachelor of Architecture degree program, since the graduate program in architecture requires the Bachelor of Architecture degree or its equivalent for entrance.

Transfer students are responsible for completing that portion of the curriculum which has not been covered by equivalent work. If the applicant has had no previous work in architectural design, the ten-term design sequence must be completed. Since this sequence may be accelerated by attending summer terms, seven or eight normal terms and two or three summer terms are typically required.

For those who would benefit from an opportunity to explore the field of architecture before deciding on a commitment to professional education, the department offers an introductory summer program which includes an introductory studio in architectural design, lectures, and other experiences designed to acquaint the participants with opportunities, issues, and methods in the field of architecture.

A limited number of transfer applicants who have completed a portion of their architecture studies in other schools are offered admission. Each applicant's case is

individually considered. Transfer students must complete a minimum of four terms in residence and a minimum of 70 credits of which 35 must be taken in the Department of Architecture, including four terms of design. Placement in the design sequence is based on a review of a representative portfolio of previous work.

All transfer applicants are encouraged to visit the college and discuss their plans with a member of the Admissions Committee. Potential transfer applicants should contact the Undergraduate Admissions Secretary, College of Architecture, Art, and Planning, Cornell University, 129 Sibley Hall, Ithaca, New York 14853 (telephone 607/256-4376).

Nonprofessional Alternative Programs

The first two years of the professional program are considered a basic introduction to the field. It is possible after this phase to depart from the professional program to develop a concentration in some area of the broader field without the intention of becoming a licensed practicing architect. A student choosing an undergraduate nonprofessional major should apply in writing by February 1 in the second year to the department chairperson. The student will be interviewed and informed about acceptance by March 1.

There are two programs leading to the Bachelor of Science degree — one concentrating in the history of architecture and the other concentrating in city and regional planning. A third program, leading to the Bachelor of Fine Arts degree with a concentration in design communications, is temporarily suspended. Students completing one of these four-year programs may continue their education in their concentration by applying to programs at the graduate level.

Archaeology

Undergraduate students in B.Arch., B.S., or B.F.A. Programs may elect a concentration in archaeology, an interdisciplinary subject offered in a series of courses organized by the Department of Archaeology (see Cornell University, Description of Courses). To qualify, students must complete the introductory course (Archaeology 100) with a grade of C or better and at least four advanced courses in archaeology, distributed among three groups: theory and interdisciplinary approaches, Old World archaeology, and New World archaeology. Students are encouraged to train as surveyors and apply for positions on archaeological field teams. Once involved in the archaeology program, a student is eligible for either the Jacob and Hedwig Hirsch or the A. Henry Detweiler travelling fellowship.

History of Architecture and Urban Development

The major in history of architecture and urban development is intended for undergraduate students interested in historical studies of architecture and planning offered in the context of a professional school. The program benefits from a tradition of pioneer work in the history of architecture and urban development that has grown at Cornell over the last thirty years. Special features of the new major are the availability of work in preservation planning and the architectural aspects of archaeology. Ten members of the college faculty offer courses appropriate for this major.

Admission to the Major Architectural history and urban development may be elected as a major subject if a student has completed Architecture 141 and 142 with a grade of B or better. Others may petition for admission to the major.

Requirements To satisfy the major subject requirement, a minimum of 40 credits of history course work must be completed with a grade of C or better. Of these 40 credits, 26 must be in architectural history and urban development with 8 of these 26 credits obtained in courses above the intermediate level. In addition, 8 credits must be taken in related fields such as history of art; archaeology; intellectual, cultural, or political history; and history of science.

Majors will be expected to meet the language requirement in the manner specified for students enrolled in College of Arts and Sciences.

Honors Program Students wishing to enroll in the honors program must indicate this intention in writing before the end of their junior year and be accepted for the program by the history of architecture faculty. Minimum requirements for admission to candidacy for honors are:

- 1) a cumulative average of B— or better in all courses;
- 2) a cumulative average of B or better in all history of architecture and urban development courses.

Honors candidates will take a 4-credit research course in the fall of their senior year. In the spring there will be a 4-credit session during which they will prepare and defend an architectural history presentation or demonstration, or a paper approximately fifty pages long.

Curriculum Students must have already completed the first two years of the Bachelor of Architecture curriculum, for a total of 70 credits.

<i>Third Year, Fall</i>	<i>Credits</i>
Fine art elective	3
Related field courses	4
History of architecture (intermediate level) or history of urban development	4
Electives	4
	<hr/> 15

<i>Third Year, Spring</i>	
Related field courses	4
History of architecture (intermediate level) or history of urban development	4
Electives	8
	<hr/> 16

<i>Fourth Year, Fall</i>	
History of architecture (advanced level) or history of urban development	4
Honors or history related subject	4
Electives	8
	<hr/> 16

<i>Fourth Year, Spring</i>	
History of architecture (advanced level) or history of urban development	4
Honors or history-related subject	4
Electives	7
	<hr/> 15

Students will have completed a total of 132 credits.

Design Communication

The Design Communication Program* has been formulated to prepare students with the skills and abilities to deal effectively with the complex possibilities presented by the new technologies in media communication forms. The program is directed toward an applied problem-solving approach to the design process in general, and to architecture in particular.

Admission to the Major Entrance to the Design Communication B.F.A. degree program is open to students who have successfully completed the first two years of the architecture program, and who have a grade of B or better in Architecture 151 and 152. Others may petition for admission to the major.

Requirements A minimum of 42 credits of course work must be completed in the major field beyond the basic sequence courses with a grade of C or better. Of the 42 credits, 24 must be in design communication. The remaining 18 credits must be in related fields such as fine arts, mass communication, perceptual psychology, lighting and acoustics, and the performing arts.

Curriculum Students must have already completed the first two years of the Bachelor of Architecture curriculum, for a total of 70 credits.

<i>Third Year, Fall</i>	<i>Credits</i>
Design communication courses, 300 level	6
Related field courses	6
Electives	3
	<hr/> 15
<i>Third Year, Spring</i>	
Design communication courses, 300 level	6
Related field courses	6
Electives	3
	<hr/> 15
<i>Fourth Year, Fall</i>	
Design communication courses, 400 level	6
Related field courses	3
Electives	7
	<hr/> 16
<i>Fourth Year, Spring</i>	
Design communication courses, 400 level	3
Thesis project in design communication	6
Electives	7
	<hr/> 16

Students will have completed a total of 132 credits.

City and Regional Planning

This program offers students completing their first two years in the undergraduate architecture program the opportunity to do additional work in planning during their third and fourth undergraduate years. It does not train students to be professional urban planners; the master's program in planning is intended for that purpose. The major is organized primarily to offer students coming from an architectural program an opportunity to redirect their academic training toward the understanding of urban and regional problems and their potential solutions.

Students doing additional work in planning may study in any one of several formal options or may work out a special program with a faculty adviser. Examples of special programs are shown below. Students completing the program should be well prepared to undertake graduate work in a variety of fields, such as urban design, landscape architecture, city and regional planning, public policy, or a number of the social science fields. They should also be well prepared to enter the field of planning as trainees or interns at various levels of government.

The Department of City and Regional Planning has applied for approval for a new undergraduate degree program in urban and regional studies. This program will be designed so that undergraduate students may transfer into it for their third and fourth year of study and earn a Bachelor of Science degree. It is expected that the first class will enter for the fall 1980 term. Please contact the department office, 106 West Sibley Hall, for more up-to-date information.

Admission Students should indicate their interest in planning by the end of the spring term of their second year. They must be in good standing and approved by the City and Regional Planning Committee on Undergraduate Programs.

Requirements and Program of Study A minimum of 30 credits of course work in the Department of City and Regional Planning (out of a total of 132 credits) is required for the degree. The core is comprised of 18 to 24 credits. Examples of possible course programs follow.

Social Planning

Introduction to Urban and Regional Theory
Introduction to Social Policy Planning
Theories and Strategies of Social Change
Introduction to Planning Theory
Social science electives

Urban Environmental Policy Planning

Introduction to Urban and Regional Theory
Urban Economic Analysis
Regional Economic Development
Introduction to the History of Urban Planning
Engineering electives

Community Development Planning

Introduction to Urban and Regional Theory
Planning Analysis
Regional Economic Development
The Impact and Control of Technological Change
Field Studies in Planning
Social science electives

Urban Planning History

Introduction to the History of Urban Planning
Design and Conservation
Seminar in American Urban History
Electives

Urban Development Process

Introduction to the History of Urban Planning
Urban Land-Use Planning
Suburbanization and Metropolitan America
Electives

A number of other independent programs can be developed.

*This program has been temporarily suspended.

Departmental Electives and Independent Study A number of courses are specifically designated for undergraduates. Undergraduate students having the necessary prerequisites may be admitted, with the consent of the instructor, to the more advanced courses. In addition, a number of courses involving independent work are available for students interested in pursuing subjects of special interest to them.

Fieldwork Students are encouraged to take fieldwork problems providing them with experience in dealing with the problems of upstate New York communities. Credit may be awarded for such fieldwork.

During the three-month summer period between the third and fourth years, students are encouraged to gain the experience through internships in city and regional planning. The field placement is generally in a planning agency or group and may be supervised by a faculty member. Credit may be awarded, if circumstances warrant.

Summer Term in Architecture

The summer term offers students the opportunity of a concentrated period of design work. Design is offered at both undergraduate and graduate levels; the term is six to eight weeks in duration.

Undergraduate design sequence courses are offered at second- through fifth-year levels in Ithaca. Normally, there is also a design program abroad for third-, fourth-, and fifth-year students.

Registration is limited to students in good standing who have completed the sophomore year of study. In exceptional cases a student who has completed only one year of study may be allowed to register.

Students from schools of architecture other than Cornell are invited to apply to the college for admission to any summer programs.

At the graduate level, the summer term is devoted to problems forming part of the student's program of work. The term may carry residence credit equal to that of a normal academic term. Participation in the program cannot be undertaken without the consent of the student's Special Committee.

Art

Undergraduate Program

The undergraduate curriculum in art, leading to the degree of Bachelor of Fine Arts, provides an opportunity for the student to combine a general liberal education with the studio concentration required for a professional degree. During the first year, all students follow a common course of study designed to provide a broad introduction to the arts and to provide a basis for the intensive studio experience in painting, sculpture, photography, and the graphic arts afforded in the last three years. In the third semester, students take either painting, sculpture, or photography and a required course in printmaking. Beginning with the fourth term, students concentrate on painting, sculpture, photography, or printmaking. They may elect additional studio work in any of these subjects during the last two years, with the consent of the instructor, providing the courses are taken in sequence and at the hours scheduled. These courses are designed to promote a knowledge and critical understanding of these arts and to develop the

individual student's talent. All members of the faculty in the Department of Art are active practicing artists whose work represents a broad range of expression.

Studio courses occupy approximately one-half of the student's time during the four years at Cornell; the remainder is devoted to a diversified program of academic subjects with a generous provision for electives.

The curriculum in art is an independent program of study within the College of Architecture, Art, and Planning. However, the intimate relationships between fine arts and training in architecture and city planning is a source of special strength in the Cornell program and affords unusual benefits to the students in these three disciplines.

Although the undergraduate curriculum in art is an excellent background for a career in applied art and offers courses in the use of graphics in modern communications, no specific technical courses are offered in such areas as interior design, fashion, or commercial art.

The department discourages the concept of accelerated graduation. However, a student may petition for consideration of early graduation upon the following terms and conditions: (1) The petition must be submitted to the faculty before course enrollment in the spring semester of the student's junior year; and (2) the student must have a cumulative average that places him or her in the first quarter of the class.

A candidate for the B.F.A. degree who wishes also to earn an A.B. degree from the College of Arts and Sciences can arrange to do so. This decision should be made early in the candidate's career (no later than the third semester) so that he or she can petition to be registered in both colleges simultaneously. Each student is assigned an adviser in the College of Arts and Sciences to provide needed guidance. Those students who are interested primarily in the history rather than in the practice of art should apply for admission to the College of Arts and Sciences with the objective of pursuing a major in the Department of History of Art in that college. Department of Art studio courses may then be taken as electives.

Curriculum

First Year

<i>Fall Term</i>	<i>Credits</i>
111 Introductory Art Seminar	1
151 Introductory Drawing	3
110 Color, Form, and Space	3
B.F.A. students must take one and may take both of the following courses:	
121 Introductory Painting	3
141 Introductory Sculpture	3
Out-of-college electives	0-3
	13-16

Spring Term

152 Introductory Drawing	3
B.F.A. students must take two of the following three courses:	
122 Introductory Painting	3
142 Introductory Sculpture	3
161 Introductory Photography	3
Out-of-college electives	4-7
	13-16

*Second Year**Fall Term*

251 Second-Year Drawing	3
131 or 132 Introductory Graphics (one term required; may be taken fall or spring)	3
B.F.A. students must take two of the following three courses:	
221 Second-Year Painting	3
241 Second-Year Sculpture	3
261 Second-Year Photography	3
Electives	4-7
	13-16

Spring Term

252 Second-Year Drawing	3
131 or 132 Introductory Graphics (one term required; may be taken fall or spring)	3
B.F.A. students must take two of the following three courses:	
222 Second-Year Painting	3
242 Second-Year Sculpture	3
262 Second-Year Photography	3
Electives	4-7
	13-16

Third and Fourth Years

Students in the third and fourth years should plan their programs to complete 28 credits in courses in one of the following studio areas: painting, sculpture, or graphics. Or, they should plan to complete 20 credits in each of two of the above areas. Students may also choose a course of study in photography through the third-year level. An additional 12 credits in history of art at the 200 level or higher or in architectural history must also be completed. Students are expected to take 32 credits in their third and fourth years respectively.

The B.F.A. program is designed so that students may fulfill the degree requirement of 129 credits with a minimum of 53 credits taken in the Department of Art and a minimum of 52 credits taken outside of the department. Within these ranges, students may design their own programs subject to the following limitations:

- 1) Of the minimum of 52 elective credits to be taken outside the Department of Art, four courses must be in English, history, or other humanities offered in the College of Arts and Sciences. In the first two years 6 credits in history of art at the 200 level or higher or in architectural history must be completed. An additional 12 credits in art history at the 200 level or higher or in architectural history must be completed in the last two years.
- 2) Of the minimum of 53 credits to be taken within the Department of Art, the following courses must be completed in the first two years: 110 Color, Form, and Space; 111 Introductory Art Seminar; 151-152 Introductory Drawing; 251-252 Second-Year Drawing. At least two of the following sequences must also be completed in the first two years: 121-122 Introductory Painting; 141-142 Introductory Sculpture; 161 or 162 Introductory Photography; and 261 or 262 Second-Year Photography. Students must also take either 131 or 132 Introductory Graphics in the fall or spring of the second year.

The University requirement of two terms in physical education must be met.

A candidate for the B.F.A. degree at Cornell is required to spend the last two terms of candidacy in residence at the University subject to the conditions of the Cornell faculty legislation of November 14, 1962.

Students who transfer into the undergraduate degree program in art must complete a minimum of four terms in residence at Cornell and a minimum of 60 credits at the University, of which 30 credits must be taken in the Department of Art, including four terms of studio work.

City and Regional Planning

Planning seeks to guide the development of the economic, social, natural, and built environments in order that some of the needs and aspirations of people may be better satisfied. Most of the activities in the department focus on a broad range of issues which are often subsumed under the labels urban, regional, or social policy planning. Urban planning is generally concerned with the urban environment, the physical facilities as well as social and economic forces that affect this environment, and the processes of urban plan making and administration. Regional planning is usually concerned with socioeconomic issues and functional planning at the regional level, the forces that generate economic growth and social development, and the ways in which resources can best be used in regional development. Social policy planning is generally concerned with the social decision processes involved in both city and regional planning. There is clearly a considerable overlap among these three areas of professional and scholarly study, and the department encourages the integration of related planning activities.

The programs of study are primarily at the graduate level. For further information see the *Announcement of the College of Architecture, Art, and Planning*.

Landscape Architecture

In the Colleges of Architecture, Art, and Planning, and Agriculture and Life Sciences, the Landscape Architecture Program offers three professional degree alternatives: a two-year graduate program leading to a Master of Landscape Architecture degree, a three-year graduate program leading to a Master of Landscape Architecture degree, and a four-year undergraduate program leading to a Bachelor of Science degree (from the College of Agriculture and Life Sciences).

For further information see *Agriculture and Life Sciences at Cornell* and the *Announcement of the College of Architecture, Art, and Planning*.

Faculty**Architecture**

M. L. Schack, chairman; P. M. Cohen, R. Crump, W. W. Cummer, M. D. Dennis, W. Goehner, D. P. Greenberg, K. H. Grey, M. Harms, G. Hascup, L. H. Hodgden, A. Kira, R. D. MacDougall, A. Mackenzie, J. Miller, L. Mirin, C. Otto, C. W. Pearman, H. W. Richardson, M. Romanach, C. Rowe, F. W. Saul, J. P. Shaw, D. M. Simons, S. Stein, O. M. Ungers, J. A. Wells

Art

Z. Blum, chairman; S. Bowman, V. Colby, B. P. Cooke (spring 1980), N. D. Daly, L. Dunkelman, K. Evett, S. Poleskie, J. Seley, A. Singer, J. L. Squier, H. Steinbach, P. Thompson, M. Vallila (fall 1979), and visiting critics

City and Regional Planning

S. Saltzman, chairman; R. S. Booth, P. Brandford, P. Clavel, S. Czamanski, J. F. Forester, N. L. Gilgosh, W. W. Goldsmith, B. G. Jones, D. B. Lewis, D. W. Nelkin, K. C. Parsons, J. W. Reps, S. W. Stein, I. R. Stewart

Landscape Architecture

L. Mirin

Associated Faculty: M. Adleman, E. Carter, R. Dwelle, T. Johnson, A. Lieberman, P. Trowbridge

College of Arts and Sciences

Administration

Alain Seznec, Dean
 Lynne S. Abel, Associate Dean
 Geoffrey V. Chester, Associate Dean
 Robert A. Scott, Associate Dean
 Urbain J. DeWinter, Associate Dean and Director of Admissions
 Elaine J. Lefferts, Assistant Dean
 Beatrice G. Rosenberg, Assistant Dean
 Janice P. Turner, Assistant Dean
 Margaret C. Unsworth, Assistant Dean
 Lawrence Watson, Assistant Dean
 Margery Clauson, Director of the Office of Records and Scheduling

Degree Programs

	Degree	HEGIS Code
Africana Studies	A.B.	2211
American Studies	A.B.	0313
Animal Physiology and Anatomy	A.B.	0410
Anthropology	A.B.	2202
Archaeology	A.B.	2203
Asian Studies	A.B.	0301
Biochemistry	A.B.	0414
Biological Sciences	A.B.	0401
Biology and Society	A.B.	4999
Botany	A.B.	0402
Cell Biology	A.B.	
Chemistry	A.B.	1905
Classical Civilization	A.B.	1504
Classics	A.B.	1504
College Scholar	A.B.	4901
Dance	A.B.	1008
Ecology, Systematics and Evolution	A.B.	0420
Economics	A.B.	2204
English	A.B.	1501
French	A.B.	1102
Genetics and Development	A.B.	0422
Geological Sciences	A.B.	1914
German	A.B.	1103
German Area Studies	A.B.	0310
Government	A.B.	2207
Greek	A.B.	1504
Hebrew	A.B.	0399
History	A.B.	2205
History of Art	A.B.	1003
Independent Major	A.B.	4901
Italian	A.B.	1104
Latin	A.B.	1109
Linguistics	A.B.	1505
Mathematics	A.B.	1701
Music	A.B.	1005
Near Eastern and Biblical Civilizations	A.B.	0399
Near Eastern Languages and Literatures	A.B.	0399
Neurobiology and Behavior	A.B.	0425
Philosophy	A.B.	1509
Physics	A.B.	1902
Psychology	A.B.	2001
Russian	A.B.	1106
Russian and Soviet Studies	A.B.	0307
Social Relations	A.B.	2201
Sociology	A.B.	2208
Spanish	A.B.	1105
Theatre Arts	A.B.	1007

Introduction

The College of Arts and Sciences at Cornell is a traditional liberal arts college. It is composed of those departments which teach and study the humanities, the basic sciences, the social sciences, and the expressive arts. It is also a university college, and this wider community provides strength and diversity not available in an isolated undergraduate institution. Students may draw upon the knowledge and facilities of the professional colleges to supplement their studies. Finally, the college is a graduate school and research center attracting faculty whose active

involvement in research and writing requires first-rate academic facilities, and whose energetic participation in undergraduate teaching brings to their students the most current ideas in modern scholarship. It is this combination of functions that gives the college its distinctive character.

The variety and richness of the curriculum is extraordinary; there is no course which all students must take and there are several hundred from which they may choose. Yet the faculty believes that there should be a recognizable pattern to each student's education.

That pattern includes familiarity with the several different modes of thought that are reflected in the natural sciences, the social sciences, and in those achievements of intellect and imagination that are the focus of the humanities and the expressive arts.

In addition to these general areas of knowledge, students study foreign languages, acquire effective writing skills, and concentrate on one particular field to develop, as fully as possible, the powers of imaginative and critical thinking.

Program of Study

To accomplish these objectives, the college has certain requirements for graduation.

Freshman Seminars

Each semester of their freshman year in the college, students choose a Freshman Seminar from among more than fifty courses offered by over a dozen different departments in the humanities, social sciences, and expressive arts. These courses all share one major purpose: to offer the student practice in writing English prose. They also ensure that all beginning students will have the benefits afforded by a small class. Some of these courses are devoted almost entirely to writing. During orientation week students may, if they wish, have their writing evaluated to help them decide which kind of seminar to choose.

Distribution Requirement

Students must take two related courses in one subject in each of four basic areas. Three of these areas are the sciences, the social sciences, and the humanities. These areas are broken into subgroups: (1) biological or physical sciences; (2) social sciences or history; and (3) the humanities or expressive arts. Students are also encouraged to study mathematics to fulfill a fourth distribution requirement. They may, however, choose instead a sequence of courses in a subject from one of the subgroups they did not use to fulfill one of the other distribution requirements.

Students must take two related courses (6 credits) in one subject in each of the basic areas, listed below.

- 1) *The natural sciences* are made up of the biological sciences, which include courses offered by all the sections of the Division of Biological Sciences; and the physical sciences, which include astronomy, chemistry, geological sciences, and physics.
- 2) *The social sciences* are made up of the social sciences, which include anthropology, economics, archaeology, government, linguistics, psychology, and sociology; and history.

- 3) *The humanities* are made up of the humanities, which include courses in the history of art, literature, and philosophy and some archaeology courses; and the expressive arts, which include music, theatre arts (and dance), and some writing courses.

Some courses given by the Africana Studies and Research Center and by the Women's Studies Program may be used to fulfill distribution requirements in areas (2) or (3).

Courses fulfilling distribution requirements must be taken in the College of Arts and Sciences. The ways in which distribution requirements can be met in the various departments are explained by each department in this *Announcement*.

Foreign Language Requirement

Foreign language study develops skills that are as necessary as mathematical and writing skills. It also provides access to a larger world — in the obvious sense, and in terms of cultural perspective. It affords a way of recognizing the arbitrariness of those thought and language patterns that we often take for granted as fixed realities. The college language requirement may be met by attaining qualification in two languages; or proficiency in one.

Qualification may be attained after three years of language study in high school. In most languages, a score of 560 on the reading portion of the College Entrance Examination Board (CEEB) Achievement Test (or, if no CEEB tests are available, a passing grade on a special examination administered by the department) will count as qualification. Qualification can also be achieved by successfully completing a course numbered 102 or 123 in a modern language; NES 102 or 104 (Hebrew) or NES 112 (Arabic) in Near Eastern studies; Greek 103 or 104 or Latin 106, 107, or 108 in the Classical languages; Chinese 160 or Japanese 160 in Asian studies.

Proficiency in most languages is gauged by the student's ability to qualify for and successfully complete a 3-credit, 200-level course. Qualification by examination is a prerequisite for taking a 200-level course.

Native Speakers of a language other than English may request exemption from the language requirement. Proficiency in both the spoken and written forms of the language must be certified by an appropriate member of the faculty. A maximum of six advanced placement credits are granted to students who demonstrate proficiency equivalent to course work at the 200-level or above at Cornell.

Because of advanced placement credits or special programs taken in high school, many students find that their preparation has already carried them beyond one or more of the college's language or distribution requirements.

The Major

In their last two years students devote roughly one-half their time acquiring depth and competence in a major subject. The choice of a major is not intended to be the choice of a lifetime's occupation, although it may become that. By selecting one field of interest students can do advanced work and focus the full extent of their imaginative and intellectual capacities on something they care about.

Students must be accepted as majors by departments or special programs before registering for courses for the junior year. Most departments and programs specify certain prerequisites for admission to the major: see the departmental listings on the following pages. A department may refuse to accept or continue as a major any student whose performance does not meet departmental standards. Some majors require courses in related subjects outside the department or outside the college; required courses taken outside the college are considered to be part of the 100 credits required in the College of Arts and Sciences for graduation. Majors are offered by each of the departments except the Departments of Astronomy, Computer Science, and Comparative Literature. There are also majors in Africana studies, American studies, archaeology, biology and society, dance, German area studies, Russian and Soviet studies, and social relations. Some students wish to pursue an interest that cannot be met within an established major. They may plan, with the help of their faculty adviser, an independent major that includes courses from several departments.

Credit and Elective Requirements

Students must earn 120 credits, 100 of which must be within the college itself, to earn the Bachelor of Arts degree. This usually entails four or five courses each semester for four years. Of the 120 credits, about half are free electives. Students must complete 15 credits in courses that are offered outside the major department and are not used to fill another requirement. Electives taken in other divisions of the University may be used to gain practical training or specialized knowledge.

Courses approved for study in absentia, advanced placement credit, and courses taken in other divisions or institutions that are certified by the major adviser as part of a student's major may be counted toward the 100 credits required within the college.

A student may not use the same course to fulfill more than one college requirement, with three exceptions:

- 1) a course may be used to fulfill a college requirement and also a major requirement, provided that the major department agrees;
- 2) a one-semester course in foreign literature that is acceptable for achieving proficiency in that language may also be used as partial fulfillment of the distribution requirement in the humanities; and
- 3) students whose native language is not English who take English 211–212 may fulfill both the Freshman Seminar requirement and the humanities or expressive arts distribution requirement by taking two Freshman Seminars offered in English, history, history of art, Classics, philosophy, romance studies, Russian literature, German literature, or comparative literature.

Courses used to fulfill college requirements may be taken for S-U grades.

Transferring Credit The college evaluates credits received from either another school or college at Cornell University or from another accredited institution of collegiate rank to determine the number of credits the student may apply toward the Bachelor of Arts degree. Tentative credit evaluations are normally provided to external transfers at the time of their notification of admission. No more than 60 transfer credits, including no

more than 20 credits in courses not commonly given by the College of Arts and Sciences, may be applied toward the degree. Transfer students must successfully complete at least 60 credits at Cornell.

Summer Session Credit Students may earn credit toward the degree by completing courses in Cornell's summer session or at other colleges. Upperclass students should consult their advisers regarding summer study plans.

Credit for summer courses not taken at Cornell *should be approved in advance* by the chairperson of the appropriate Cornell department. The college Recording and Scheduling Office, 144 Goldwin Smith Hall, can supply forms and information. Effective September 1976 credit earned in summer courses will not count toward the 100 credits required in the college unless the student's major adviser certifies that it contributes to the major. Transcripts should be sent to the Office of Recording and Scheduling, 144 Goldwin Smith Hall.

Entering students who wish to receive credit toward the degree for courses completed in a summer session at Cornell or elsewhere should have transcripts sent to the Office of Recording and Scheduling, 144 Goldwin Smith Hall during the summer before matriculation.

Noncredit Courses The college does not grant credit for all courses offered by the University. Courses in remedial reading, writing, and mathematics; physical education; and most military training courses are among those for which credit is not given.

Repeating Courses Students may repeat courses. If the instructor certifies that the course content has been changed, credit may be granted a second time. If the content has not been changed the course may be repeated to obtain a better grade, but no additional credit will be given. Students who plan to repeat a course should notify the Office of Recording and Scheduling, 142 Goldwin Smith Hall.

Residence

Normally students spend eight full-time semesters in residence. However, students who have advanced placement credit or summer school credit or who have taken additional courses in order to accelerate, may graduate in six or seven terms if they satisfy all the requirements for graduation and have earned grades of C or better in at least 100 of the 120 credits. Students are normally expected to earn at least 90 credits during their terms of residence at Cornell.

Transfer Students must spend a minimum of three regular semesters and one six-week summer session in residence at Cornell, earning at least 60 credits during that time.

Ninth Term Students may spend a ninth term in residence by notifying the Recording and Scheduling Office, 142 Goldwin Smith Hall. Students receiving financial aid should discuss funding with an adviser in the Office of Financial Aid.

Physical Education

See "University Requirements for Graduation."

The college does not count physical education credit toward the 120 credits required for graduation. Students are automatically registered for physical education by the college until they complete the requirement.

Summary of Basic College Requirements for Graduation

Freshman Seminars	Two courses (6 credits)
Foreign language	Qualification in two languages or proficiency in one (0–15 credits depending upon placement)
Distribution	Two related courses (6 credits) in one subject in each of the four areas listed below: <ol style="list-style-type: none"> 1) Biological sciences or physical sciences 2) Social sciences or history 3) The humanities or expressive arts 4) Mathematics or one of the subject groups not previously used to complete a requirement.
Major	Completion of departmental or program requirements
Electives	15 credits in courses not used to fulfill other requirements
Credits	120 credits (100 of these credits must be taken in the college)
Residence	Eight full-time terms
Physical education	Completion of the University requirement

Language Course Placement and Credit

It is essential that students who plan to continue their study of a foreign language at Cornell be placed in a course at the appropriate level. In French, German, Hebrew, Italian, Russian, and Spanish, course placement is determined by the reading score on the College Entrance Examination Board (CEEB) College Placement Test. A departmental examination is required for placement in all Latin courses except Latin 105. Students who have had previous study or experience in other languages may take the placement examinations administered during orientation week.

Category I: Students with a CEEB College Placement Test reading score of 700 or above are eligible to take an advanced standing examination. This examination is required of those who choose to continue studying a language at Cornell. Students who do not plan to continue language study are advised to take the examination because they may satisfy the language requirement or receive advanced standing credit.

The advanced standing examinations in Latin and Greek are given by the Department of Classics and in Hebrew by the Department of Near Eastern Studies. The examinations in French, German, Italian, Russian, and Spanish are given by the Department of Modern Languages and Linguistics during orientation week. Times and places are listed in the orientation newspaper or students may contact the Office of Guidance and Testing, 203 Barnes Hall, for a schedule.

Category II: Students with two or more years of study in a particular language who have not taken a CEEB examination Students who wish to continue studying a language for which they have no CEEB reading score are required to take a CEEB examination, or, in Latin, a Classics department examination. Students who wish to continue studying a language in which they have had a year or more of instruction since taking the CEEB test are eligible to take the examination at Cornell before registering for courses. Students who wish to take a CEEB examination at Cornell must register with the Office of Guidance and Testing, 203 Barnes Hall, and pay a fee of \$4.

Category III: Students with a CEEB College Placement Test reading score below 700 are eligible for the courses listed in the chart below, depending on their score. A score of 560 (500 in Hebrew) allows students to elect most of the intermediate (200-level) courses. A score of 560 (500 in Hebrew) is also significant because it satisfies the language qualification requirement. Students who have qualification in one language may wish to attain proficiency in that language or pursue qualification in a second language.

Placement in Language and Literature Courses

CEEB Reading Score	French		German		Russian		Spanish		Latin
	Language Courses	Literature Courses	Language Courses	Literature Courses	Language Courses	Literature Courses	Language Courses	Literature Courses	
Below 450	121		121		101		121		105
450–559	123		123		102 123		123		Place- ment by exami- nation
560–699	203	200 201–202 211	203	201 202	203	201	203	201 212	
700 and above*	Apply for advanced standing examination								

*650 and above in French.

The CEEB guidelines for Hebrew (Near Eastern studies) are given below.

Placement in Hebrew

CEEB Reading Score	Course Number
Below 425	101, 103
425–499	102, 104
500–649	201, 202, 231, 232
650–699	301
700 and above	Apply for advanced standing examination

Special Academic Options

College Scholar Program

The College Scholar Program frees forty students in each class from the usual college requirements for a degree and allows them to design their own academic programs. It is meant to serve students whose interests and talents do not easily fit into the usual departmental majors, who demonstrate exceptional promise, and who show the maturity to plan and carry out, with the help of their adviser, a well-designed program of studies. College scholars do not all design the same kind of program: some, for instance, pursue two diverse interests while others integrate a variety of courses with a common theme.

College scholars must complete 120 credits of course work (100 in the college) and, unless they receive permission to accelerate, eight full-time terms in the college. They must complete the physical education requirement. Beginning with the Class of 1982 each college scholar must complete a senior project. They are not required to complete or fulfill the distribution requirement, but members of the College Scholar Advisory Board believe that the spirit of the requirements is a good one.

Applications to the College Scholar Program are due the last day of the reading period before final examinations of the spring term of the freshman year. Students should contact the Office of Special Programs, 159 Goldwin Smith Hall, for further information.

Honors Candidates for honors must maintain a 3.5 average in all courses and must complete two college scholar seminars. Nonscientists should complete one seminar in some aspect of science, and scientists at least one in the humanities or social sciences. During the senior year candidates for honors must complete a thesis or honors project. Students interested in the honors program should confer with the director of the College Scholar Program before the start of the senior year.

Double Majors

A student may complete a double major by fulfilling the major requirements in any two departments of the college.

Double Registration

Double registration in the College of Arts and Sciences and with the Cornell Law School, Cornell Medical College, or SUNY Upstate Medical Center is possible. A few exceptionally well-prepared students who have earned 105 credits before the start of the senior year and been accepted by one of the above-named professional schools

may be permitted to register simultaneously in the college and in one or another of these professional schools during their seventh and eighth terms.

Students registering in the Cornell Law School receive the Bachelor of Arts degree after their eighth term at Cornell and the Doctor of Law degree after two additional years of study. Law students must take one course in the College of Arts and Sciences during both the seventh and eighth terms.

Students registering in the college and in one of the medical colleges listed above receive the Bachelor of Arts degree after their first year of medical studies and the Doctor of Medicine degree after the remaining three years of medical college are completed.

Dual Degree Program

Especially able students may earn both a Bachelor of Arts degree from the College of Arts and Sciences and a Bachelor of Science degree from the College of Engineering or a Bachelor of Fine Arts from the Department of Art in the College of Architecture, Art, and Planning. The dual degree program ordinarily takes five years to complete. Students enter one of these colleges as freshmen and begin the dual program with the College of Arts and Sciences in the second or third year. For further information contact the college's Academic Advising Center, 134 Goldwin Smith Hall (telephone 256-5004).

Fieldwork

Sometimes it is appropriate for students to include fieldwork as part of their major. A three-member faculty committee helps the student plan the project, arranges for ongoing supervision, and evaluates the project at the end of the term. Fieldwork almost always involves writing a long term paper or several short papers as well as practical experience. All proposals for fieldwork must be presented to the Academic Records Committee for approval. A maximum of fifteen credits in fieldwork may be earned. For further information contact the Academic Advising Center, 134 Goldwin Smith Hall.

Study in Absentia

Some students may wish to enrich their programs by studying in absentia, either abroad or at an American institution that offers programs not available at Cornell. Before planning such a program consult the Academic Advising Center, 134 Goldwin Smith Hall. Information about study abroad may also be found at the Career Development Center. A request to study in absentia must have the support of the faculty adviser and each course must be approved by the appropriate department chairperson. Credits earned in absentia may count as part of the 100 credits required within the College of Arts and Sciences if the field of study is represented in the college but the particular courses or program are not. Normally transfer students will not be allowed study in absentia.

When plans are final, the student should submit an outline of the course of study and the signatures of the faculty adviser and the appropriate chairpersons to the Recording and Scheduling Office, 142 Goldwin Smith Hall. The University charges \$15 for each semester of study in absentia.

Independent Major Program

The Independent Major Program allows students to design their own majors if they wish to pursue an interest that cannot be met within an established major. Proposals for independent majors must be supported by a faculty adviser and are assessed by a board of faculty members. Board members consider whether the plan is equivalent in coherence, breadth, and depth to a departmental major, whether it is well-suited to the student's academic preparation and ability, and whether it provides a liberal education. Independent majors substitute for established majors, but students must still satisfy all the other usual requirements for the baccalaureate degree. Students should consult the director of the Independent Major Program, Office of Special Programs, 159 Goldwin Smith Hall, for further information. Deadlines for submitting independent major proposals are September 12, October 15, January 30, and March 10 in the second semester of the sophomore year.

Honors Candidates for honors must have a cumulative average of 3.0, no grade below B in courses in the major, and a cumulative average of 3.5 for courses in the major. During their senior year candidates for honors must complete a thesis or honors project. Interested students should confer with the director of the Independent Major Program before the start of the senior year.

Independent Study

Independent study affords students the opportunity to pursue special interests not treated in regularly-scheduled courses. A faculty member, who becomes the student's adviser for the course, must approve the student's program of study and agree to provide on-going supervision of the work. In one semester students may earn up to six credits with one instructor or eight credits with more than one instructor.

Prelaw Study

Law schools neither require nor prefer any particular program of study; they do seek students with sound training in the liberal arts. The important thing is to plan a program in which you are interested and in which you will do well. Beyond that, students are advised to take courses that will develop the powers of precise, analytic thinking and proficiency in writing and speaking.

The college offers a concentration in law and society. Many prelaw students complete four courses in this program because it interests them, not because it helps get them into law school.

Premedical Study

The breadth and depth afforded by a liberal arts education are invaluable for people who plan medical careers, whether they intend to practice or to go into medical research. Such training has a profound effect upon the doctor's usefulness to patients, and it affords the flexibility of mind that is needed for major research undertakings. While medical and dental schools do not prescribe a particular major, they do require particular undergraduate courses. Students who are interested in medical careers are urged to visit the college's Academic Advising Center and the Health Careers Office at the Career Development Center for help in planning their undergraduate program.

Undergraduate Research Program

Students interested in participating in a faculty member's research and earning credit for their work should consult the bulletin board opposite the Office of Special Programs, 159 Goldwin Smith Hall, for a list of research projects available in the physical and biological sciences, social sciences, and the humanities. The Undergraduate Research Program has a modest budget to provide equipment and computer time for some projects.

Special Programs and Areas of Concentration

The College offers a number of special and interdisciplinary programs which are described following the departmental program descriptions. Students may devise an independent major with the aid of any of these programs or develop an informal minor field. (Informal minors are not listed on the student's official record.)

Student-Initiated Courses

The college encourages students to initiate proposals for new courses or modes of instruction that are not currently offered in the college or elsewhere in the University. If such a proposed course falls within the jurisdiction of a particular department, students should seek the advice of a faculty member in the department or the department chairperson. For further information consult the Office of Special Programs, 159 Goldwin Smith Hall.

Registration and Course Scheduling

University Registration

All students must register with the University at the beginning of each semester. Registration materials are available at a time and place announced each term by the Office of the University Registrar.

Course Enrollment

New Students Incoming freshmen and transfer students will be notified early in July by the Academic Advising Center about procedures for scheduling courses.

Continuing Students are expected to schedule courses the previous term. Students who fail to sign into courses during the designated period must wait until the beginning of the semester and may have difficulty securing places in the courses they desire. Students may schedule up to 18 credits during the advance scheduling period.

Before signing into courses students should make appointments with their faculty advisers and plan their programs in consultation with them. Student advisers will also consult with students. Any student is welcome to discuss programs and plans with a member of the Academic Advising Center staff. The Recording and Scheduling Office issues a supplement showing last-minute changes in courses; supplements of other divisions of the University are also available for reference in the Recording and Scheduling Office, 142 Goldwin Smith Hall.

Continuing students select courses the semester before they take them. In the fall continuing students receive their course schedules at University registration. They also receive a copy of their Permanent Record Card, which shows the courses taken, grades received, graduation requirements fulfilled, and academic actions. Copies of Permanent Record Cards are not official transcripts.

Course Load

Students must take an average of 15 credits each term in order to graduate in eight terms. A minimum course load permitted is 12 credits; if for compelling personal or academic reasons students must carry fewer than 12 hours, they should consult their faculty adviser and file a petition with the Academic Records Committee. Completion of fewer than 12 credits without permission results in unsatisfactory academic standing. First term freshmen may not register for more than 18 credits; other students may register for more than 18 credits a term only if their previous term average was a B or higher and if their faculty adviser approves. No more than 22 credits may be taken each term.

Special Registration Options

Acceleration Many students are able to earn the Bachelor of Arts degree in six or seven terms. Frequently students have entered with substantial advanced placement credit. Students may also earn more than 15 credits per term. Acceleration plans must be approved by the student's adviser, department chairperson, and the college. Students who accelerate must earn grades of C or better in 100 credits of course work. Ideally acceleration plans should be worked out at the time students choose majors at the end of the sophomore year. Acceleration petitions may be obtained in the Recording and Scheduling Office, 142 Goldwin Smith Hall.

Adding and Dropping Courses After course enrollment, students may not add or drop courses until the new term begins. All program changes must be approved by course instructors (or by a person designated by the appropriate department), and by the faculty adviser. During the first three weeks course changes may be made without fees. In order to make changes, students must pick up add/drop forms in the Recording and Scheduling Office, 142 Goldwin Smith Hall, take them to be signed by the course instructor and their faculty adviser, and return the forms to the Recording and Scheduling Office. After the third week of classes courses may be added only under unusual circumstances and only if the student is certain that all the course work can be completed. Each student must fill out a petition, have it approved by his or her adviser and the course instructor, and pay the \$10 fee. After the eighth week courses may be changed only if there are extraordinary and unforeseen circumstances. Students must obtain the approval of the course instructor and their faculty adviser on the petition to drop the course and submit the petition for consideration by the Academic Records Committee.

Auditing There is no formal arrangement for auditing courses by undergraduates. Those who wish to sit in on a class must obtain the permission of the course instructor.

Leaves of Absence

Many students have found it useful to take time off from college to think about their goals and their progress, or just to take a break from studying. Students in good standing who take a leave of absence by the end of the seventh week of the semester are welcome to reregister in the college; a maximum of five years is the length of time

students may be on leave and return without special permission. Leaves of absence are of four types.

- 1) *Personal leaves* have no conditions concerning the right to reenter the college except for the five-year limit. Readmission is automatic if a written request is made one month prior to the beginning of the term in which the student wishes to return.
- 2) *Medical leaves* are granted by the college only upon recommendation from the Gannett Clinic. Such leaves are granted for an unspecified length of time (up to five years) with the understanding that a student may return at the beginning of any term after satisfying the clinic that the medical condition in question has been corrected.
- 3) *Conditional leaves* may be granted if the student is not in good standing, or, in unusual circumstances, after the eighth week of the term. Normally students may not return from conditional leaves for at least two terms.
- 4) *Required leaves* The Academic Records Committee may require a leave of absence if a student is in 'academic difficulty. See "Academic Actions."

Any student who wishes to take a leave of absence should consult a member of the Academic Advising Center staff. If a student takes a leave before the end of the term, all courses taken that term will be removed from the student's record. Upon readmission, the student's graduation date will be recalculated according to the number of terms completed, the number of acceptable credits earned towards the degree, and the college's requirements for graduation.

Withdrawals

A withdrawal is considered voluntary severance of connection with the University. If a student wishes to withdraw after registering for the term, the withdrawal must be requested before the beginning of the eighth week of classes. Upon withdrawal it is assumed that the student will not wish to reregister in the college. *If a student fails to register for a term and does not request a leave, the student will be withdrawn from the college for failure to register.*

Transferring within Cornell

Internal transfer is attractive for many students whose interests have broadened or refocused upon a particular field. Students who wish to transfer from one college or school at Cornell to another should discuss their eligibility with an admissions counselor at the new school or college.

In some cases the student who wishes to transfer into the College of Arts and Sciences may transfer directly. In other cases the student may be referred to the Division of Unclassified Students to prepare for admission to the college. During the term immediately preceding transfer, each student should complete at least 12 credits of courses in the College of Arts and Sciences with a minimum average of 2.7 and without any grades of Incomplete, any S-U grades (unless only S-U grades are offered for that particular course), or any grades below C. Admission to the college is based upon consideration of the student's entire record at Cornell and the high school record, not just the work of one term.

Part-Time Study and Pro Rata Tuition

The college ordinarily expects its students to be full-time and permits part-time attendance only in unusual circumstances and for Ithaca residents twenty-three years of age or older. In certain cases seniors who are completing their final term in the college may register for fewer than twelve credits and pay pro rata tuition.

Examples of cases in which part-time attendance may be permitted follow.

- 1) A student who has completed all degree requirements by the end of the seventh term may receive permission to study part time during the eighth term.
- 2) A student who has completed all degree requirements in seven terms but is majoring in a department that requires candidates for honors to complete the thesis in the eighth term may be permitted to register for fewer than 12 credits.
- 3) A student who has received permission to accelerate has been forced to drop a course (for reasons beyond his or her control) and has not been able to complete the course work on schedule may be able to complete the requirements as a part-time student.
- 4) A student who is pursuing honors work and must complete extensive research away from the campus, which precludes registering for additional courses, may be allowed to register for fewer than 12 credits.

Students who are allowed to register for part-time study must pay the student service charge (\$537.50) plus one-twelfth of the remaining full tuition per credit.

Absences

Attendance in classes is a matter between students and their instructors. If a student cannot attend classes because of illness or family crisis the Academic Advising Center will notify instructors, when requested, but students must arrange for making up examinations or other work. When students will be absent because of religious holidays they must discuss arrangements for making up their work with their instructors.

Grades

Letter Grades

See "Cornell University Grading System."

S-U Grades

Students may elect within the first three weeks of the term to receive a grade of S (satisfactory) or U (unsatisfactory) instead of one of the letter grades (A+ through F), provided that the instructor is willing to assign such grades. A grade of S is equivalent to a grade of C- or higher; a grade of U is equivalent to any grade below C-. S means the student receives the credit specified for the course; U means no credit is given. A few courses in the college are graded exclusively on an S-U basis. The S-U option allows students to explore unfamiliar subject areas without being under pressure to receive high grades.

Courses that will count toward satisfaction of major requirements should not be taken for an S or U grade unless the department grants permission. Students may elect the S-U option in courses used to satisfy distribution and language requirements provided that such courses do

not also count toward major requirements or serve as prerequisites for admission to the major. Students are advised to use the S-U option sparingly if they intend to apply to graduate school or for transfer to another college. There is no limit on the number of courses each term for which the S-U grade option may be elected, but within the 120 credits required for the degree, a minimum of 80 credits must be in courses for which a letter grade was given.

To elect the S-U option, students should fill in the proper space on the optical scan forms during course enrollment.

To change the grading option at the beginning of the term, students should obtain a course change card from the Recording and Scheduling Office, 142 Goldwin Smith Hall, fill the card out to indicate the grade option change, and have the card signed by the course instructor and their faculty adviser. The card must be returned to the Recording and Scheduling Office within the first three weeks of the term. *No change in the grading option can be made after the first three weeks of the term.*

Incomplete Grades

A grade of incomplete signifies that a course was not completed before the end of the term for reasons acceptable to the instructor. Each instructor retains complete discretion in determining the circumstances for which incompletes will be given. Students must have substantial equity in the course; that is, they must be able to complete the remaining work without further registration, and must have a passing grade for the completed portion.

When a grade of incomplete is reported, the instructor will state what work must be completed, when it must be completed, and what grade should be awarded if the work is not completed by that date. If a grade is not assigned, the incomplete will remain. Unless the instructor stipulates otherwise, students will be allowed one term plus one summer to make up the work.

The grade of incomplete remains on the student's record permanently even after the final grade is recorded.

R Grades

R designates courses that are two-semester or year-long courses. The R is recorded on the student's Permanent Record Card at the end of the first term. The grade recorded at the end of the second term shows the student's level of performance in the course for the entire year. The total credits that will be earned for the whole course are listed each term.

Grade Reports

Grade reports for the fall term are included in spring term registration materials; grade reports for the spring term are mailed to each student's home address.

The college does not compute term grade point averages, cumulative averages, or class rank.

Academic Standing

Students are considered in good standing for the term if they successfully complete at least 12 credits by the end of the term and receive no more than one D and no grade of F or U. If a student's record falls below this level or if unsatisfactory overall progress is made in grades or in credits (whether due to failures or incompletes) or in the

requirements of the college or the major, the student may be considered for academic action by the Academic Records Committee, the Committee of Deans, or one of the deans of the college.

Academic Actions

Warning Any student who fails to maintain good standing may be warned. The warning may be given informally by a committee of college deans or it may be given formally by the Academic Records Committee. A warning is posted on a student's Permanent Record Card, but is not reported to the University Registrar and does not appear on official transcripts.

Final Warning Students whose work is so seriously deficient that they risk being required to leave may be placed on Final Warning by the Academic Records Committee. A final warning is posted on the student's Permanent Record Card, but is not reported to the University Registrar and does not appear on official transcripts.

Required Leave of Absence A student in academic difficulty may be required by the Academic Records Committee to take a leave of absence, normally for a full year. In some cases students will be required to furnish evidence that they are ready to return before being allowed to reregister in the college. Students who request to return after a period of less than a year must present to the Academic Records Committee exceptionally strong evidence of their readiness to return. "Required leave of absence" is posted on the student's Permanent Record Card; the University Registrar is notified and "Leave of Absence" and the date will appear on the student's transcript.

May Not Reregister The Academic Records Committee may stipulate that a student may not reregister in the college on the basis of a highly unsatisfactory record for one term or for failure to make satisfactory overall progress in grades, credits, or the requirements of the major. This action expels the student permanently from the college. "May not reregister" is posted on the student's Permanent Record Card; the University Registrar is notified and "May not reregister in the College of Arts and Sciences" and the date will appear on the official transcript.

Students being reviewed for academic action are urged to present evidence that will help explain their poor academic performance. Students may appear personally before the Academic Records Committee to appeal any decision or action of the committee.

Honors

Dean's List The requirements for the Dean's List are determined by the dean and may vary from term to term. The specific criteria for a given term together with the list of students who have met those criteria will be posted on the bulletin board next to 144 Goldwin Smith Hall as soon as this information is available.

Bachelor of Arts with Honors Almost all departments offer honors programs for students who have demonstrated exceptional ability in the discipline and who seek an opportunity to explore branches of their subject not represented in the regular curriculum or to gain experience in original investigation. The honors programs are described by individual departments in the following sections.

The degree of Bachelor of Arts with Honors will be conferred upon students who, in addition to having completed the requirements for the degree of Bachelor of Arts, have satisfactorily completed the honors program in their major and have been recommended for the degree by their major department, the Independent Major Program, or the College Scholar Program.

Bachelor of Arts with Distinction The degree of Bachelor of Arts with distinction in all subjects will be conferred upon students who, in addition to having completed the requirements for the degree of Bachelor of Arts, have:

- 1) completed at least sixty credits while registered in regular sessions in the College of Arts and Sciences;
- 2) received a grade of B— or better in at least three-fourths of the total number of credits taken while registered in the college;
- 3) received grades of A— or better for at least one-half of the total number of credits taken while registered in the college;
- 4) received a grade below C— in no more than one course;
- 5) received no failing grade;
- 6) maintained good standing in each of their last four terms; and
- 7) have no incompletes remaining on their records.

Advising

The following advisers and offices are here to provide: information on college procedures and regulations, academic advising, or counselling.

The Academic Advising Center, 134 Goldwin Smith Hall, serves as a resource center for faculty and student advisers and for students themselves, and welcomes all questions regarding the college.

Handicapped Students Cornell's academic and social resources are fully available to all students, including persons who have impairment of sight, hearing, mobility, or muscular coordination. The college's adviser for the handicapped is Elaine Lefferts, 134 Goldwin Smith Hall.

Faculty Advisers help students design programs of study and advise students about ways to achieve their academic goals. Faculty members volunteer to act as advisers to new students in the college; advisers and advisees meet during orientation week to plan the student's program. Students are encouraged to see their advisers again early in the term, before it is too late to drop courses and before signing into courses for the following term, to discuss their academic program and to get better acquainted. Academic difficulties may be avoided if students and advisers recognize problems early.

Advisers must approve each semester's program and any course changes. Students who would like to petition for an exception to college rules should discuss the matter with their advisers; the adviser must approve the petition before it can be acted upon.

Advisers may also help students with study or personal problems or direct them to other offices on campus where help is available.

Major Advisers After acceptance into a major program, students are assigned a major adviser with whom they make many of their most important decisions at Cornell. The adviser must approve the student's course of study and eventually certify the completion of the major. The major adviser should be consulted by the student about all academic plans, including such aspects as acceleration and graduate study. The adviser's support is especially important when a student petitions for an exception to the requirements for the degree.

Student Advisers Each new student is also assigned a student adviser who can provide information about courses and instructors and about life at Cornell.

Directors of Undergraduate Studies Larger departments have designated a faculty member to be the primary departmental contact for undergraduates. The directors of undergraduate studies assist students interested in majoring in the department or putting together a program involving a substantial amount of course work in that department. The director of undergraduate studies can advise students about which introductory courses most suit their background and goals. This is particularly useful in mathematics, physics, and languages. In smaller departments, the department chairperson usually provides this counselling.

<i>Directors of Undergraduate Studies or Departmental or Program Contacts</i>	<i>Telephone</i>
Africana Studies and Research Center Prof. Robert Harris, 310 Triphammer Rd.	6-5218
American Studies Prof. Cushing Strout, 110A Rockefeller Hall	6-4611
Anthropology Prof. Robert Ascher, B63 McGraw Hall	6-5137
Archaeology Prof. David Jones, 265 McGraw Hall	6-7254
Asian Studies Prof. Karen Brazell, chairperson, 150B Rockefeller Hall	6-5095
Astronomy Prof. Yervant Terzian, 428 Space Sciences Building	6-4935
Division of Biological Sciences Ms. Sylvia Miller, coordinator, Biology Center, G20 Stimson Hall	6-7429
Prof. Stanley Zahler, associate director, 118 Stimson Hall	6-5233
Biology and Society Prof. Stuart M. Brown, Jr., 628 Clark Hall	6-3810
Chemistry Prof. Benjamin Widom, 122 Baker Laboratory	6-4174
Chinese-FALCON Program Prof. John McCoy, 320 Morrill Hall	6-6457
Classics Prof. Donald Malone, 27 Goldwin Smith Hall	6-3354
College Scholar Program Dean Lynne Abel, director, 159 Goldwin Smith Hall	6-3386
Comparative Literature Prof. William Kennedy, chairman, 244 Goldwin Smith Hall	6-4155
Computer Science Prof. Gregory Andrews, 419C Upson Hall	6-4053

Dance Prof. Peggy Lawler, Helen Newman Hall	6-2360
Economics Prof. Uri Possen, 436 Uris Hall	6-5108
English Prof. Daniel Schwarz, 335 Goldwin Smith Hall	6-4212
French Language Prof. James S. Noblitt, 314 Morrill Hall	6-4087
French Literature Prof. Jacques Béreaud, 263 Goldwin Smith Hall	6-5048
Geological Sciences Prof. Arthur Bloom, 211 Kimball Hall	6-5232
German Area Studies Prof. Herbert Deinert, 188 Goldwin Smith Hall	6-3932
German Language Prof. Herbert L. Kufner, 211 Morrill Hall	6-4230
German Literature Prof. Herbert Deinert, 188 Goldwin Smith Hall	6-3932
Government Prof. Mary Katzenstein, 130 McGraw Hall	6-3549
History Prof. Sherman Cochran, 434 McGraw Hall	6-4351
History of Art Prof. Robert Calkins, chairman, 32 Goldwin Smith Hall	6-4905
Independent Major Program Dean Lynne Abel, director, 159 Goldwin Smith Hall	6-3386
Indonesian-FALCON Program Prof. John U. Wolff, 307 Morrill Hall	6-4863
Center for International Studies Prof. Milton J. Esman, 170A Uris Hall	6-6370
Italian Language Prof. Carol Rosen, 203 Morrill Hall	6-4298
Italian Literature Prof. Anita Grossvogel, 285 Goldwin Smith Hall	6-7570
Japanese-FALCON Program Prof. Eleanor Jorden, 321 Morrill Hall	6-6457
Latin American Studies Program Department Office, 190 Uris Hall	6-3345
Linguistics Prof. James W. Gair, 407 Morrill Hall	6-5110
Program of Jewish Studies Prof. Jeremy Cohen, 166 Rockefeller Hall	6-5010
Mathematics Prof. G. R. Livesay, associate chairman, 208 White Hall	6-5027
Medieval Studies Program Prof. Arthur Groos, 180 Goldwin Smith Hall	6-3932
Music Prof. Malcolm Bilson, 109 Lincoln Hall	6-3425
Near Eastern Studies Prof. David Owen, chairman, 164 Rockefeller Hall	6-6275
Philosophy Prof. Nicholas Sturgeon, 226 Goldwin Smith Hall	6-5000
Physics Prof. Douglas Fitchen, chairman, 109 Clark Hall	6-7561
Psychology Prof. Lynn Cooper, 224 Uris Hall	6-6351
Religious Studies Concentration Prof. Allen Wood, 327 Goldwin Smith Hall	6-5104

Russian and Soviet Studies	
Prof. Walter Pintner, 431 McGraw Hall	6-3311
Russian Language	
Prof. Leonard H. Babby, 310 Morrill Hall	6-2322
Russian Literature	
Prof. George Gibian, 193 Goldwin Smith Hall	6-4047
Program on Science, Technology, and Society	
Prof. Raymond Bowers, 614 Clark Hall	6-3810
Social Relations	
Prof. Robin M. Williams, Jr., 342 Uris Hall	6-4266
Sociology	
Prof. Richard Alba, 386 Uris Hall	6-4801
Spanish Language	
Prof. Margarita Suñer, 217 Morrill Hall	6-4298
Spanish Literature	
Prof. Margaret Van Antwerp-Hill, 269 Goldwin Smith Hall	6-5038
Theatre Arts	
Prof. Ira Hauptman, 107 Lincoln Hall	6-3532
Undergraduate Research Program	
Dean Lynne Abel, director, 159 Goldwin Smith Hall	6-3386
Western Societies Program	
Prof. Douglas Ashford, 130C Uris Hall	6-6225
Women's Studies Program	
Sandra Bem, director, 431 White Hall	6-6480

American Studies

S. C. Strout, chairman; M. J. Colacurcio, R. H. Elias,
R. L. Moore, R. Polenberg, F. Somkin

The Major

The major in American studies is basically a program of coordinated study in the history and literature of the United States. It is not a "double major." The prerequisites are minimal: one course in British or American history at the 100 or 200 level and one course in British or American literature at the 200 level. The major itself is structured and demanding, and students who expect to become American studies majors should apply to the chairman as early as possible.

In consultation with their advisers, American studies majors elect 32 credits of work in the history and literature of all three large periods into which an account of the nation's development can be divided, defined for the purposes of the program as colonial, nineteenth century, and twentieth century. In order to gain both depth and breadth, they select as an area of concentration either a single period or the connections between two of the periods and take either 16 credits in one period and 8 credits in each of the other two, or 12 credits in each of the two periods whose connections constitute the focus of study and 8 credits in the third. In addition, they take one of the specially designated interdisciplinary seminars at the 400 or 600 level. This may mean taking an additional 4 credits, but when the subject matter is appropriate, such a seminar may count toward the satisfaction of the period requirements. Students may divide the work between history and literature in whatever proportion serves their interests, provided that they take no more than two-thirds of their credits in any one department.

Beyond the basic requirements in American history and American literature, 12 credits above the elementary level are required in allied subjects. Eight credits of work are in the history and/or literature of another related culture; and 4 credits are in American thought, society, or culture studies from the perspective of another discipline, such as anthropology, economics, government, history of art, and sociology. (This last 4-credit requirement may be satisfied outside the college.)

Courses in American history that will satisfy the 32-credit requirement described in the second paragraph are offered by the Department of History; those in American literature are offered by the Department of English, the Department of Theatre Arts, and the Africana Studies and Research Center. Occasionally a course that fits an individual student's program may be offered elsewhere. Substitution will depend on the adviser's approval. A list of courses designated as interdisciplinary seminars may be obtained from the chairman.

Honors Candidates for honors must maintain an average of B+ in courses pertinent to the major. To be eligible for a degree with honors in American studies a student must in the senior year (a) either write an honors essay for American Studies 493, Honors Essay Tutorial, or submit to the American Studies committee three term papers written for courses in the major, and (b) take an oral examination in the declared area of special interest.

Anthropology

R. J. Smith, chairman; R. Ascher, J. A. Boon,
D. R. DeGlopper, V. R. Dyson-Hudson, C. J. Greenhouse,
D. J. Greenwood, J. S. Henderson, C. F. Hockett, B. J. Isbell,
K. A. R. Kennedy, A. T. Kirsch, B. Lambert, T. F. Lynch,
C. Morris, J. V. Murra, J. T. Siegel

The faculty in anthropology believes that one or two courses in anthropology are useful for any student in the University regardless of division or major. For that reason very few courses in anthropology have prerequisites and almost all of the 300- and 400-level courses are open to nonmajors.

The Major

Anthropology includes four subdisciplinary specializations: archaeological, biological, linguistic, and sociocultural anthropology. Aside from these specializations, anthropologists have also concentrated on a number of topics and problems, as well as on the study of the diverse peoples living in all regions of the world. The listing of courses (Categories I–X) reflects these subdisciplinary specializations as well as the range of topics, problems, and world areas with which anthropologists at Cornell deal.

The major in anthropology must take

- 1) two introductory courses (Anthropology 1.01–102), preferably during the freshman or sophomore years (Freshman Seminars in anthropology do not fulfill this requirement); and
- 2) Anthropology 300, The Discipline of Anthropology, during the fall term of the junior year.

In addition, the major is expected to develop one or more areas of concentration within the discipline in consultation with his or her faculty adviser.

To ensure some degree of exposure to the breadth and diversity of anthropology, the major must take

- 3) courses at the 200 level or above in at least two of the four subdisciplines (Category III — Archaeological Courses; Category IV — Biological and Ecological Anthropology; Category V — Linguistic Anthropology; Category VI — Sociocultural Anthropology);
- 4) at least one course at the 200 level or above in Category VII — Theory and History of Anthropology; and
- 5) at least one course in Category VIII that focuses on some world area.

A total of 32 credits of course work in anthropology beyond the introductory level is required of all majors; however, up to 8 credits of course work in cognate disciplines (see Category IX) may be accepted for the major with permission of the student's faculty adviser.

Honors Anthropology majors interested in the honors program should consult the director of undergraduate studies before the beginning of their senior year and apply for admission to the program. Candidates for the degree of Bachelor of Arts with honors in anthropology must complete a thesis in the spring term of the senior year. Students may enroll in Anthropology 491 or 492, Honors Thesis, after obtaining the consent of the Honors Committee. The decision to award honors and in what degree is based on the quality of the thesis and the student's overall record.

Human Biology Program

Human biology is a program of study offered by the Department of Anthropology in order to train students in a broad variety of subjects within the area of human biology. Such subjects include human evolution, ecology, genetics, behavior, anatomy, physiology, and nutrition. The program is offered as a concentration to undergraduate students.

Application All inquiries about the concentration should be directed to the Department of Anthropology. Applicants will be assigned a biological anthropologist to serve as a temporary adviser with whom they may discuss their plans.

Requirements for the concentration in human biology are designed to ensure sufficient background in the physical sciences and mathematics to enable the student to pursue a wide range of interests in the area of modern biology. In the freshman year, two semesters of biology (Biological Sciences 101–103 and 102–104, lectures and laboratory), two semesters of general chemistry (Chemistry 207–208), and two semesters of calculus (Mathematics 111–112, 111–122, or 107–108) will normally be completed. One lecture course in organic chemistry and one organic chemistry laboratory (Chemistry 253–251, or 357–358 and 301–251), a course in genetics (Biological Sciences 281), and a course in biochemistry (Biological Sciences 430 or 330–331) are requirements which can be completed by the middle of the sophomore year. Two semesters of physics (Physics 101–102 or 207–208) are required and should be completed early in the student's program.

The concentration in human biology requires a total of fourteen credits selected from the following: Anthropology 101, 102, 204, 221, 372, 373, 374, 375, 471, 476, and Biological Sciences 274, 360, and 477 (Section of Ecology and Systematics). Biological science courses included in the concentration requirement may not be used simultaneously to fulfill the breadth requirement.

Breadth requirements, designed to ensure that the student in human biology is familiar with areas of biology outside the concentration, specify that each student must pass a course in two of the categories listed below.

- 1) *Developmental Biology*: Biological Sciences 347
- 2) *Ecology and Evolution*: Biological Sciences 461 or 476
- 3) *Geology*: Geological Sciences 101
- 4) *Microbiology*: Microbiology 290A
- 5) *Morphology*: Biological Sciences 310, 313, 336, or 345
- 6) *Neurobiology and Behavior*: Biological Sciences 321 or 421
- 7) *Physical Sciences and Mathematics*: Chemistry 287, 289, or 300; Mathematics 214, 215, 216, or 221; or Statistics 510
- 8) *Physiology*: Biological Sciences 242 or 341, 410, or 414
- 9) *Taxonomy*: Biological Sciences 316 or 343
- 10) *Nutrition*: Nutritional Sciences 115, 231, or 347

Facilities

Cornell has a modern physical anthropology laboratory with a collection of osteological and fossil cast materials. Facilities for serology, anthropometry, primate dissection, and work physiology studies are available. Calculators and a statistical and reference library are maintained in the laboratory as well as drafting and photographic equipment.

Special Programs

Specialized individual study programs are offered in Anthropology 497–498, Topics in Anthropology, open to a limited number of juniors and seniors who have obtained consent of the instructor. Undergraduates should also note that most 600-level courses are open to them if consent of the instructor is obtained.

The Department of Anthropology holds colloquia throughout the academic year. Faculty members from Cornell and other universities participate in discussions of current research and problems in anthropology. Students are encouraged to attend.

Distribution Requirement

The distribution requirement in social sciences can be met by any two courses in the Department of Anthropology, or by Archaeology 100 and any anthropology course listed under Archaeology. Courses cross-referenced but not taught by members of the department do not satisfy the distribution requirement.

Archaeology

A. H. Bernstein (history), A. L. Bloom (geological sciences), R. G. Calkins (history of art), K. M. Clinton (Classics), J. E. Coleman (Classics), W. W. Cummer (architecture), R. T. Farrell (English), J. S. Henderson (anthropology), D. M. Jones (archaeology), P. I. Kuniholm (Classics), T. F. Lynch (anthropology), C. Morris (anthropology), J. V. Murra (anthropology), G. Olmsted (Society for the Humanities), G. W. Olson (agronomy), D. I. Owen (Near Eastern Studies), P. A. Rahe (history), A. Ramage (history of art), J. M. Weinstein (Near Eastern Studies)

The basic introductory course for both majors and nonmajors is Archaeology 100. Those with a fairly serious interest in the field, particularly prospective majors, are encouraged to take the optional one-hour section, Archaeology 101. This course covers the broadest range of archaeology in terms of area and time, and deals with method as well as results.

The Major

Archaeology at Cornell is an interdisciplinary subject. Since the major draws upon the teaching and research interests of faculty from many departments in order to present a broad view of the archaeological process, a student interested in the archaeology major should discuss his or her course of study with a participating faculty member as early as possible. In some areas of specialization, intensive language training should be coordinated with other studies as early as the freshman year.

As prerequisites to the major a student must complete Archaeology 100 and another introductory archaeology course with grades of C or better. Once admitted to the major, the student must take an additional thirty credits in courses from the archaeology list, chosen in consultation with the major adviser. These courses should provide exposure to a broad range of archaeologically known cultures and the methods of revealing and interpreting them. They must be distributed as follows:

- 1) At least 20 credits at the 300 level or above
- 2) At least 6 credits in each of the categories below:
 - a) Theory and interdisciplinary approaches
 - b) Old World archaeology
 - c) New World archaeology

Beyond these 30 credits a student must elect at least 6 credits in related subjects outside the major, such as computer science, statistics, ethnology and history of appropriate areas, draftsmanship, photography, surveying and map making, interpretation of aerial photographs, paleography, and epigraphy.

Fieldwork Every student should gain some practical experience in archaeological fieldwork on a project authorized by his or her adviser. This requirement may be waived in exceptional circumstances. The Jacob and Hedwig Hirsch bequest provides support for a limited number of students to work at excavations sponsored by Cornell and other approved institutions.

The Concentration

Only students in other Cornell schools and colleges may elect a concentration in archaeology; they are eligible for Hirsch scholarships in support of fieldwork. To concentrate in archaeology, the student must complete Archaeology 100 with a grade of C or better and at least four advanced courses in archaeology, distributed among the three groups stipulated in (2) above.

Distribution Requirement

The distribution requirement can be satisfied in the social sciences, humanities, or expressive arts by taking Archaeology 100 and a second archaeological course chosen from the College of Arts and Sciences courses listed below.

The social sciences distribution requirement can be fulfilled with Archaeology 100 and any one of the following: Anthropology 150, 250, 333, 352, 354, 355, 358, 361, 405, 435, 456, 493, 494, 633, 663, 664, 666, 667.

The humanities distribution requirement can be fulfilled with Archaeology 100 and any of the following: Archaeology 275, 281, 301, 310, 311, 312, 313; Classics 200, 206, 220, 221, 232, 233, 309, 320, 321, 326, 329, 629, 630; Near Eastern Studies 243, 249, 280, 282, 285, 348, 349, 385, 387, 388, 481.

The expressive arts distribution requirement can be fulfilled with Archaeology 100 and any one of the following: History of Art 220, 221, 320, 321, 322, 323, 324, 325, 326, 327, or 330.

Asian Studies

K. Brazell, chairperson; B.R. Anderson, D. E. Ashford, M. L. Barnett, M. G. Bernal, N. C. Bodman, J. A. Boon, S. Cochran, R. D. Colle, M. B. deBary, D. R. DeGlopper, A. T. Dotson, E. C. Erickson, J. W. Gair, M. D. Glock, F. H. Golay, A. G. Grapard, A. B. Griswold, E. M. Gunn, D. G. E. Hall, F. E. Huffman, R. B. Jones, E. H. Jorden, G. McT. Kahin, M. Katzenstein, G. B. Kelley, K. A. R. Kennedy, A. T. Kirsch, J. McCoy, R. D. MacDougall, D. B. McGilvray, T. L. Mei, G. M. Messing, D. P. Mozingo, S. J. O'Connor, T. J. Pempel, D. E. Perushek, C. A. Peterson, J. T. Siegel, R. J. Smith, J. U. Wolff, W. O. Wolters, D. K. Wyatt, M. W. Young

Asian studies encompasses the geographical areas of East Asia, South Asia, and Southeast Asia and offers courses in most of the disciplines of the social sciences and the humanities. Asian Studies courses through the 400 level are taught in English and are open to majors and nonmajors alike. Some of these courses may be counted toward a major in other departments. Majors in Asian studies specialize in the language and culture of one country and often choose an additional major in a traditional discipline.

The Major

The applicant for admission to the major in Asian studies must have completed at least one course selected from among those listed under the Department of Asian Studies in *Cornell University: Description of Courses* and must receive permission for admission to the major from the director of undergraduate studies. The student must have received a minimum grade of C in this course and in all other courses counted toward the major.

A student majoring in Asian studies is required to complete two courses at the 200 level in one of the Asian languages offered at Cornell. The major consists of at least 30 additional credits (which may include further language study) selected by the student in consultation with his or her adviser from among the courses listed under the Department of Asian Studies numbered 300 and above. Majors normally concentrate their work in at least one of the disciplines and in one of the following areas: China, Japan, South Asia, or Southeast Asia. The student may also consider a double major combining Asian studies with one of the disciplines.

Honors are awarded those students who have completed a successful honors essay and who have met the following requirements. Each student must have maintained a cumulative average of B+ in Asian studies courses. Candidates for honors should have taken at least one of the seminars listed in the departmental course offerings, selected in consultation with their adviser; or they may, with the approval of their adviser, substitute an advanced course in which they complete a considerable body of independent work. Honors candidates will also take Asian Studies 402, for which they write the honors essay, and an Asian studies bibliography course selected in consultation with their adviser. Students may also enroll in Asian Studies 401 in the senior year, but this course is not required. Selection of an honors essay topic, normally at the end of the junior year, should be made in consultation with two interested professors, one of whom will become the student's essay adviser. At the end of the junior year students should consult the professor with whom they plan to write their paper.

Distribution Requirement

The distribution requirement in the humanities may be satisfied in Asian studies by 6 credits of any 300-level courses which form a sequence, listed in *Cornell University: Description of Courses* under "Asia — Literature and Religion." Most of these 300-level courses have no prerequisites.

Concentration in Southeast Asia Studies

A candidate for the Bachelor of Arts or Bachelor of Science degree at Cornell may take a concentration in Southeast Asia studies by completing 15 credits of course work, including a history course and three courses or seminars at the intermediate or advanced level, two of which may be Southeast Asian language courses. Students taking a concentration in Southeast Asia studies are members of the Southeast Asia Program and are assigned an adviser from the program faculty. Such students are encouraged to commence work on a Southeast Asian language and to take advantage of summer intensive language training.

Intensive Language Program (FALCON)

For those students desiring to accelerate their acquisition of Chinese, Japanese, or Indonesian, Cornell offers a full-time, intensive language program. FALCON students spend six hours a day, five days a week, for periods up to a full year studying only the language and thus are able to complete as many as 1,200 hours of supervised classroom and laboratory work in one year.

Astronomy

Y. Terzian, chairman; S. Beckwith, J. Burns, J. M. Cordes, F. D. Drake, P. J. Gierasch, T. Gold, K. I. Greisen, M. O. Harwit, J. R. Houck, R. Lovelace, S. T. Ostro, C. E. Sagan, E. E. Salpeter, S. Shapiro, S. Teukolsky, J. Veverka

The Department of Astronomy offers a number of courses that are of general interest, have little or no prerequisites, and are not intended for the training of professional astronomers. These courses are numbered from 101 to 332. The last of these, Astronomy 332, requires calculus and a year of college physics, and Astronomy 111–112 requires at least coregistration in beginning calculus. The other courses have no college prerequisites at all. Courses

numbered above 400 are intended for students who have had two to three years of college physics and at least two years of college mathematics. Astronomy 400, Independent Study, permits students to engage in individual small research projects.

Students interested in becoming astronomers should major in physics as undergraduates. It is wise to get an early start in mathematics and physics, preferably by registering for Matheoatics 191–192 or 193–194 or 111–112 in the freshman year, and by taking Physics 112 as soon as the prerequisites have been completed.

The Concentration

Students with a serious interest in astronomy may elect a concentration to supplement their major. Such students should consult Professor Terzian regarding their programs and goals.

Distribution Requirement

The distribution requirement in physical sciences may be met by either Astronomy 101 or 111 plus 102 or 112. It may also be met by taking one course from Astronomy 101, 102, 111, or 112 plus one of the following: Astronomy 215, Physics 203, Geological Sciences 101, or Geological Sciences 103 plus 105. Taking Astronomy 102 or 112 plus Astronomy 332 will also fulfill the requirement.

Astronomy 103–104, identical to Astronomy 101–102 except for the omission of the laboratories, *cannot* be used to satisfy distribution requirements.

Biological Sciences

Biology has become an extremely popular subject at many universities for a variety of reasons: it is a science that is in an explosive phase of exciting development; it prepares students for careers in challenging and appealing areas such as human and veterinary medicine and environmental sciences; and it deals with the inherently interesting questions that arise when we seek to understand ourselves and the living world around us. Many of the decisions we face today deal with the opportunities and problems that biology has put before us.

At Cornell the program of study in biology is offered by the Division of Biological Sciences to the students enrolled in either the College of Agriculture and Life Sciences or the College of Arts and Sciences.

The biology program is designed to enable students to acquire necessary scientific foundations, to become familiar with different aspects of modern biology, and to then concentrate in a specific area of biology. Areas of concentration include animal physiology and anatomy; biochemistry; botany; cell biology; ecology, systematics, and evolution; genetics and development; or neurobiology and behavior. Special programs are available for qualified students with particular interest in areas such as marine biology, nutrition, microbiology, biophysics, or general biology. For more details see "Division of Biological Sciences."

Chemistry

B. Widom, chairman; A. C. Albrecht, J. M. Burlitch, B. K. Carpenter, J. C. Clardy, W. D. Cooke, E. L. Elson, R. C. Fay, M. E. Fisher, J. H. Freed, B. Ganem, M. J. Goldstein, E. R. Grant, G. G. Hammes, R. Hoffmann, P. L. Houston, R. E. Hughes, F. A. Long, F. W. McLafferty, J. Meinwald, G. H. Morrison, R. F. Porter, L. Que, J. R. Rasmussen, H. A. Scheraga, M. J. Sienko, D. A. Usher, J. R. Wiesenfeld, C. F. Wilcox

The Major

A major in chemistry permits considerable flexibility in the detailed planning of a course program. The required courses can be completed in three years, leaving the senior year open for advanced and independent work in all areas of chemistry: physical, organic, inorganic, analytical, theoretical, bioorganic, biophysical. A major in chemistry can also provide the necessary basis for significant work in related areas, such as molecular biology, chemical physics, geochemistry, chemical engineering, solid-state physics, and medicine.

The courses are arranged as a progression with some courses (including mathematics and physics) prerequisite to those that are more advanced. During the first year, the student should normally register for general chemistry (preferably but not necessarily Chemistry 215), mathematics, a Freshman Seminar course, a foreign language if necessary or, in some instances, physics. Although Chemistry 215–216 is preferred, students may begin their programs with Chemistry 207–208. Chemistry 215–216 is limited to those students with good preparation and a strong interest in chemistry. Students who do not know if their preparation is adequate should consult the instructor. In the second year the student should complete calculus and take physics and organic chemistry (Chemistry 359–360 is preferred to Chemistry 357–358). The second year laboratory courses include 300, Quantitative Chemistry, if needed, and 301, Experimental Chemistry I. 389–390, Physical Chemistry I and II, and 302–303, Experimental Chemistry II and III, should be completed in the third year. Advanced work in chemistry and related subjects can be pursued in the fourth year and, to some extent, in the earlier years as well. The opportunity for independent research is also available. All students with questions about details of a major program are encouraged to consult the chairman of the Department of Chemistry or the chairman's representative. Entering students exceptionally well prepared in chemistry may receive advanced placement credit for Chemistry 207–208 and proceed to a more advanced program.

Prerequisites for admission to a major in chemistry are (1) Chemistry 215–216 or 207–208 plus 300; (2) Physics 207; and (3) Mathematics 111 or 191. Students are not encouraged to undertake a major in chemistry unless they have passed those prerequisite courses at a good level of proficiency. Knowledge of simple computer programming is essential. This may be achieved either by self-study (a syllabus is available) or by taking courses such as Computer Science 100. The minimum additional courses that must be completed for a major in chemistry are listed below.

- 1) Chemistry 301, 302, 303, 359–360 (or if necessary, 357–358 may be substituted), and 389–390

- 2) Mathematics 112 plus 214, 215, 216, 217; or 122 plus 221, 222; or 192 plus 293, 294

- 3) Physics 208

This sequence is a core program in chemistry. It is anticipated that students will, through elective courses, extend it substantially in whatever direction suits their own needs and interests. It is particularly important that those going on to do graduate work in chemistry recognize that these requirements are minimal, and such students are strongly urged to supplement their programs, where possible, with Chemistry 404, 405, 605, 606, 607, 668, 681, and German or Russian. Even students not planning graduate work in chemistry should consider advanced work in physics and mathematics, courses in the biological sciences, and advanced work in chemistry as possible extensions of the basic program.

Honors The honors program in chemistry offers superior students an opportunity to study independently in seminars and to gain additional experience by engaging in research during the senior year. It is particularly recommended to those who plan graduate work in chemistry. Prospective candidates should complete the introductory organic chemistry and physical chemistry sequences by the end of the junior year. However, failure to have completed those courses in the junior year does not in itself disqualify a student from the honors program. Completion of the program at a high level of performance leads to the degree of Bachelor of Arts with honors in chemistry. The requirements for admission to the honors program are an above-median cumulative average and permission of the department. Prospective candidates should discuss their plans with their advisers by March 1 of their junior year. To be awarded honors, candidates must show outstanding performance in at least 8 credits of undergraduate research such as offered in Chemistry 421, 433, 461, or 477. In addition outstanding work in the Honors Seminar, Chemistry 498, is expected.

Distribution Requirement

The distribution requirement in the physical sciences is satisfied in chemistry by Chemistry 103, 207, or 215 followed by 104, 208, or 216.

Laboratory Course Regulations

Students registered for laboratory courses who do not appear at the first meeting of the laboratory will forfeit their registration.

Students and members of the teaching staff are required to wear safety glasses or approved eye-protective devices in all chemistry laboratories. Those who fail to cooperate with the safety program may be asked to leave the laboratories.

Students are required to pay for glassware and any other items broken or missing from their laboratory desks at the close of each semester. Students who fail to inventory their desks at the appointed time in the presence of their instructor are charged a \$5 fee in addition to charges for any breakage.

Classics

K. Clinton, chairman; L. S. Abel, F. M. Ahl, J. E. Coleman (graduate faculty representative), J. R. Ginsburg, W. R. Johnson, G. M. Kirkwood, P. Kirkwood, P. I. Kuniholm, D. L. Malone, G. M. Messing, J. J. O'Donnell, P. Pucci, S. Stambler

The Department of Classics provides an interdisciplinary approach to the Greek- and Latin-speaking civilizations and to the work of later writers and thinkers who used the Latin language. Courses about the writers, poets, and philosophers of Greco-Roman civilization are emphasized because the department believes they are of central importance in a humanistic education. Students are encouraged to pursue their interests in the department even if they do not wish to major in Classics.

Students without backgrounds in the Classics may begin their studies at Cornell. Students who have not studied a Classical language may take a variety of courses and seminars offered on such subjects as Greek mythology, Greek and Roman mystery religions, early Christianity, and Roman law. Students interested in Classical literature and thought may study ancient epic, tragedy, history, and philosophy, in translation or in the original language.

A number of programs in the Classical languages are offered. Students may study Latin or Greek at either the beginning or more advanced levels. A program in modern Greek is given every other year. From time to time, courses in other ancient languages of Italy may also be offered.

Students interested in archaeology may take courses in Bronze Age and Classical archaeology, which may be used to satisfy some of the requirements for the concentration in archaeology. The department's resources include collections of ancient artifacts and reproductions of ancient sculpture and a laboratory for the study of tree-ring dating. The department also sponsors an excavation at Alambra in Cyprus.

The Majors

The Department of Classics offers majors in Classics, Greek, Latin, and Classical civilization.

Classics Those whose major study is in Classics must complete 24 credits in advanced courses in Greek or Latin (courses numbered 201 or above) and 15 credits in related subjects, selected after a conference with the adviser.

Classical Civilization Those whose major study is in Classical civilization must complete (a) qualification in Latin and Greek or proficiency in either; (b) 24 credits selected from the courses listed under Classical civilization, Classical archaeology, Latin, and Greek; and (c) 15 credits in related subjects (courses in the humanities selected in conference with the adviser).

Greek Those whose major study is in Greek must complete 24 credits of advanced courses in Greek and 15 credits in related subjects (including Latin). One or more courses offered by the Department of Comparative Literature may be counted towards the required 24 credits of Greek if students obtain the prior approval of their major adviser.

Latin Requirements for the major in Latin parallel those of the major in Greek.

Honors Candidates for the degree of Bachelor of Arts with honors in Classics, Greek, Latin, or Classical civilization must fulfill the requirements of the appropriate major study as prescribed in the paragraphs above and also must complete successfully the special honors courses 370, 471, and 472. Credit for honors courses may be included in the credits required for the major study. Students who wish to become candidates for honors, who

have a cumulative average of B- or better, and have demonstrated superior performance in Classics courses (Greek, Latin, and Classical civilization) should, after consulting a member of the department, submit an outline of their proposed honors work to the honors committee during the first month of their fifth semester.

Study Abroad

Cornell participates in the Intercollegiate Center for Classical Studies in Rome, which offers courses in Latin, Greek, ancient history, art, archaeology, and Italian. Cornell is a member institution of the American School of Classical Studies at Athens, whose Summer Program is open to graduate students and qualified undergraduates. The American Academy in Rome, of which Cornell is also a member institution, offers regular and summer programs for qualified graduate students. Detailed information on these programs is available in the Department of Classics Office, 120A Goldwin Smith Hall.

Distribution Requirement

The distribution requirement in the humanities is satisfied in Classics by (a) any two courses in Greek beginning with 201 or in Latin beginning with 205 that form a reasonable sequence; or (b) any two of the following: Classics 100, 119, 120, 121, 211, 212, 220, 221, 224, 225, 226, 232, 233, 236, 237, 238, 300, 304, 309, 320, 321, 322, 323, 326, 331, 332, 333, 336, 337, 339, 340, 345, 360, 363, 365, 365A, 426, 428, 430, 431, 610, 629, 630.

Placement in Latin

Placement of first-year students in Latin courses is determined by an examination given by the Department of Classics during orientation week, or, if necessary, in the second half of the fall term.

Comparative Literature

W. J. Kennedy, chairman; W. W. Holdheim, T. Bahti, C. M. Carmichael, M. Spariosu (Mellon Fellow), with J. Culler (English), D. I. Grossvogel (Romance Studies), P. Hohendahl (German), E. Rosenberg (English)

Also cooperating: M. H. Abrams, C. Morón-Arroyo, J. P. Bishop, E. A. Blackall, E. G. Fogel, G. Gibian, S. L. Gilman, A. V. Grossvogel, T. L. Jeffers, W. R. Johnson, C. Kaske, R. E. Kaske, G. M. Kirkwood, C. Levy, H. S. McMillin, B. O. States

A broad spectrum of courses in various literary problems (imitation and influence, Marxist aesthetics, literature and history), major authors (Dostoevsky, Ibsen, Dante), key thematic (the hero, the city, the detective), stylistic modes (satire, parody, allegory), generic forms (drama, novel, short fiction), and historical periods (medieval, Renaissance, modern) are offered by the department. For the student who chooses to major in another literature, courses in comparative literature offer a rich background that supplements their specialization.

The Major

Starting in 1979-80 the department plans to offer a major in comparative literature. Its purpose is to integrate students' knowledge of Western literature, to develop their critical reading abilities, and to train them for careers that demand analytical, interpretive, and evaluative skills. By the beginning of the sophomore year proficiency in at least one foreign language is required. By the end of sophomore

year students normally have taken the introductory courses surveying the literature of two or more national traditions (such as German, English, romance studies, Russian, Classics, Near Eastern studies, or Asian studies). Students then select advanced courses in those departments and in comparative literature to form a sequence that combines an education in a wide range of literatures with techniques of analyzing, interpreting, and evaluating literary texts.

Distribution Requirement

The distribution requirement in the humanities may be satisfied by any two of the 200- or 300-level courses in comparative literature. 400-level courses may be applied with the permission of the instructor. Any 100-level course may be used toward satisfying the Freshman Seminar requirement.

Computer Science

J. Hartmanis, chairman; G. Andrews, R. Cartwright, R. L. Constable, R. W. Conway, A. Demers, J. E. Dennis, Jr., J. Donahue, D. Gries, J. E. Hopcroft, F. Luk, G. Salton, F. Schneider, T. Teitelbaum, C. Van Loan

The Department of Computer Science is sponsored jointly by the College of Arts and Sciences and the College of Engineering. The department emphasizes three areas of computer science: theory of computation (automata, complexity, algorithms), programming systems, and numerical analysis. Although many undergraduate courses are offered, an undergraduate major has not been available. However, a proposal for such a major is currently pending before the faculty and may be approved for 1979–80. Students who wish more information may contact the department office, 405 Upson Hall (telephone 256-4052).

In lieu of an undergraduate major, students interested in computer science have been advised to major in mathematics. Students then pursue option II, which allows a strong concentration in computer science. The proposed computer science major is similar to this applied major and it will be relatively easy to satisfy both sets of requirements. Most students, particularly those who expect to do graduate work, will be advised to major in both computer science and mathematics. Students who want to concentrate in computer science should plan a program including Computer Science 211, 280, 314, 410, and at least two courses from Computer Science 321, 322, 414, 432, 481, 482, 611, and 612.

Two different introductory programming courses are offered. Computer Science 100 introduces programming languages and covers procedures in both the PL/1 and FORTRAN languages. Computer Science 101 omits procedures and uses only the PL/1 language; the programming pace is slower and part of the coursework involves reading and discussing the applications and implications of computers. Computer Science 101 may be taken before 100, but not after it, and is not considered a prerequisite for 100. Students must take a 100-level course before taking subsequent courses in computer science.

Economics

M. Majumdar, chairman; M. G. Clark, T. E. Davis, D. Easley, L. Ebrill, R. Ehrenberg, G. Fields, R. H. Frank, W. Galenson, M. Gertler, R. H. Golay, W. Greene, E. Grinols, G. Hay, G. H. Hildebrand, W. Isard, R. Joyeux, A. E. Kahn, S. Marston, R. Masson, P. D. McClelland, U. M. Possen, R. E. Schuler, S. M. Slutsky, G. J. Staller, J. Svejnar, E. Thorbecke, S. C. Tsiang, J. Vanek, H. Y. Wan, Jr.

The Major

Students who wish to major in economics must have completed Economics 101–102 or its equivalent with an average of C or better. Students who have completed only one semester of the introductory course may be accepted as provisional majors provided their grade was at least C. Prospective majors should report to the Department of Economics Office.

The requirements for a major are: (1) Economics 311 and 312; (2) 20 credits of other economics courses listed by the Department of Economics in *Cornell University: Description of Courses*, except that, with the permission of the major adviser, two economics courses outside the College of Arts and Sciences may be used to fulfill this requirement; and (3) three courses above the introductory level in subjects related to economics selected, with the approval of the major adviser, from the offerings of the Departments of Anthropology, Asian Studies, Government, History, Mathematics, Philosophy, Psychology, and Sociology.

In addition to the courses required for the major, many students will find it valuable to take statistics (the diverse possibilities include Agricultural Economics 310, OR & IE 270 or OR & IE 260 and 370, and Mathematics 370 and 371, 472, 475). Mathematics courses are not needed for an undergraduate major. However, students planning graduate work in economics are strongly advised to take mathematics at least through calculus and linear algebra.

Honors Candidates for the degree of Bachelor of Arts with Honors are required to: (1) have a grade-point average in economics courses of A– or better, except in exceptional circumstances; (2) enroll in Economics 391 and 392 in their senior year.

Distribution Requirement

The distribution requirement in social sciences may be satisfied by Economics 101–102.

English

A. R. Parker, chairman; M. H. Abrams, B. B. Adams, A. R. Ammons, J. P. Bishop, J. F. Blackall, S. Budick, A. Caputi, M. J. Colacurcio, J. Culler, D. D. Eddy, R. H. Elias, S. B. Elledge, R. T. Farrell, E. G. Fogel, L. Green, L. Herrin, N. H. Hertz, T. D. Hill, T. L. Jeffers, C. V. Kaske, R. E. Kaske, R. Kirschten, C. S. Levy, A. Lurie, D. E. McCall, K. A. McClane, J. R. McConkey, H. S. McMillin, P. L. Marcus, D. M. Mermin, R. Morgan, T. C. Murray, D. Novarr, S. M. Parrish, B. Rosecrance, E. Rosenberg, P. L. Sawyer, D. R. Schwarz, H. E. Shaw, S. Siegel, W. J. Slatoff, J. Stallworthy, B. O. States, S. C. Strout, W. Wetherbee

The Department of English offers a wide range of courses in English and American literature as well as in creative and expository prose. Literature courses focus variously on close reading of texts, on study of particular authors and genres, on the relationship of literary works to their

historical periods, and on questions of critical theory and method. The department not only stresses the development of analytical reading and lucid writing but, through the study of major literary texts, teaches students to think about the nature and value of human experience.

Students who major in English develop their own program of study in consultation with their adviser. Some focus on a particular historical period or develop programs that concentrate on poetry, drama, or the novel. Others have a special interest in creative writing. Students may also concentrate in medieval studies or American studies.

The Major

Any student considering a major in English should see the department's director of undergraduate studies to arrange an assignment to a major adviser. Copies of a brochure containing suggestions for English majors and prospective English majors are available in the department office, 252 Goldwin Smith Hall.

Prospective English majors should take one or more courses from among English 270, 271, 272, 275, 280, and 281 as early as possible. All of these courses are open to sophomores and to qualified freshmen. As soon as students have completed one of these courses they may declare themselves English majors provided they have achieved an average of C or better in the English courses they have taken. English 270, 271, 272, open to all second-term freshmen, may be used to satisfy the Freshman Seminar requirement. First-term freshmen who have received advanced placement credit in English may enroll in English 270, 271, or 272 as space permits, and students interested in majoring in English are encouraged to do so.

Students majoring in English are required to complete 6 credits of foreign language study (preferably in the literature of a foreign language) in courses for which qualification is a prerequisite. Majors are urged to complete this requirement by the end of their sophomore year, and students who enter Cornell without sufficient preparation should therefore begin studying a language during their freshman year.

In addition to satisfying the requirements outlined above, English majors must take a minimum of 36 credits in courses approved for the major and complete them with passing letter grades. Courses approved for the major are English 201, 202, and all English courses numbered 300 or above except English 496, 570, 571, 575, 576, 578, and 579. In addition to 201–202, students may count up to two courses for the major from the category entitled "200 Courses Approved for the Major." Students may also offer in satisfaction of the major as many as three courses numbered 300 or above in a foreign literature, in comparative literature, or in special courses such as those sponsored by the Society for the Humanities provided these alternatives are approved by their adviser.

Among the courses approved for the major, English 201 and 202 are especially recommended for English majors and should be taken by the end of the sophomore year. Students who do not take English 201–202 should choose their major courses with a view toward covering the historical range of English and American literature. Literature courses at the 300 level are intended to provide such coverage.

Of the 36 credits required for the major, at least 8 must be in English or American literature written before 1800.

Honors Prospective candidates for the degree of Bachelor of Arts with honors in English should consult the chairperson of the Honors Committee during the spring term of their sophomore year or early in their junior year.

Honors candidates will take one or two Honors Seminars (491 or 492) during their junior year, as well as a 400-level course in the field in which they plan to work during their senior year. The work of the senior year is a year-long tutorial (493 and 494) on a special topic of the candidate's choosing, culminating in the writing of an honors thesis of approximately fifty pages. More information about the program may be found in the department's brochure for honors candidates.

Distribution Requirement

The distribution requirement in the humanities may be satisfied with any two courses in English at the 200 level or above other than those required for teacher certification (English 496 and courses in the 500s). The distribution requirement in the expressive arts may be satisfied with any two courses in English at the 200 level or above numbered in the 80s.

If students have used English courses to satisfy the expressive arts requirement, then the student should not take courses numbered in the 80s to satisfy the humanities requirement.

Teacher Preparation

Prospective teachers of English in secondary schools who seek provisional certification in New York State must fulfill all the requirements of the major. In addition, they elect a special program of professional courses. A detailed statement about programs for teachers is available in the office of the Department of English.

Courses for Nonmajors

For students not majoring in English, the department makes available a variety of courses at all levels. Some courses at the 200 level are open to qualified freshmen, and all of them are open to sophomores. Courses at the 300 level are open to juniors and seniors and to underclass students with permission of the instructor. The suitability of courses at the 400 and 600 levels for nonmajors will vary from topic to topic, and permission of the instructor is required.

Courses for Freshmen

As part of the Freshman Seminar Program, the Department of English offers many one-semester courses. The courses are concerned with various forms of writing (narrative, biographical, expository), with the study of specific areas in English and American literature, and with the relation of literature to culture. Students may elect any two of these courses during their first year to satisfy the Freshman Seminar requirement.

Geological Sciences

J. E. Oliver, chairman; S. B. Bachman, W. A. Bassett, J. M. Bird, A. L. Bloom, L. D. Brown, J. L. Cisne, A. K. Gibbs, B. L. Isacks, D. E. Karig, S. Kaufman, R. W. Kay, F. H. T. Rhodes, C. R. Stern, W. B. Travers, D. L. Turcotte

As an intercollege unit, the Department of Geological Sciences has degree programs in both the College of Arts and Sciences and the College of Engineering.

The Major

The prerequisites for admission to a major in geological sciences in the College of Arts and Sciences are two of the two-semester sequences of courses chosen from the following, or their equivalents: Biological Sciences 101–103 or 102–104; Chemistry 207–208, Mathematics 191–192; and Physics 112–213. Geological Sciences 101–102 is recommended, but a student with a strong foundation in mathematics and science may be accepted as a major without completion of 101–102.

Majors take the six core courses in geological sciences, a summer field geology course, one additional course in geological sciences numbered 400 or above, and a third two-semester sequence chosen from the courses in biological sciences, chemistry, mathematics, and physics listed above, plus an additional course in one of these fields at an intermediate or advanced level. In addition, majors must complete a senior thesis.

Core Courses

325	Structural Geology and Sedimentation
345	Geomorphology
355	Mineralogy, Petrology, and Geochemistry I
356	Mineralogy, Petrology, and Geochemistry II
376	Historical Geology and Stratigraphy
388	Geophysics and Geotectonics

Prospective majors should consult one of the following departmental major advisers: W. A. Bassett, 222 Kimball Hall; A. L. Bloom, 211 Kimball Hall; R. Kay, 304A Kimball Hall; J. Oliver, 209 Kimball Hall, or W. B. Travers, 219 Kimball Hall, as early as possible for advice in planning a program. Students majoring in geological sciences may attend the departmental seminars and take advantage of cruises, field trips, and conferences offered through the Department of Geological Sciences.

Courses offered at the 100 and 200 level are open to all students. Certain 300-level courses in geology may be of particular interest to students of chemistry, biology, ecology, and physics. Students are encouraged to inquire about courses that interest them at the department office, 210 Kimball Hall.

Distribution Requirement

The distribution requirement in physical sciences is met by Geological Sciences 101–102 or 103, 105, and 102.

German Literature

See "Modern Languages, Literatures, and Linguistics," p. 100.

Government

G. H. Quester, chairman; B. R. O'G. Anderson, D. E. Ashford, M. G. Bernal, S. Buck-Morss, D. J. Danelski, W. J. Dannhauser, A. T. Dotson, M. J. Esman, B. Ginsberg, G. McT. Kahin, M. Katzenstein, P. Katzenstein, E. W. Kelley, E. G. Kenworthy, I. Kramnick, P. Leeds, T. J. Lowi, D. P. Mozingo, T. J. Pempel, R. H. Rosecrance, M. Rush, L. Scheinman, M. Shefter, S. G. Tarrow, N. T. Uphoff, D. E. Van Houweling

To accommodate new courses or course changes, a supplementary announcement is prepared by the department. Before enrolling in courses or registering each term, students are requested to consult the current supplement listing courses in government, available in 125 McGraw Hall.

The Major

For a major in government the following courses must be completed: (1) three of the following introductory courses: Government 111, 131, 161, 181; (2) a minimum of twenty-four additional credits in government department courses numbered 300 or above; (3) in related subjects, a minimum of twelve credits selected with the approval of the adviser from courses numbered 300 or above in the Departments of Anthropology, Economics, History, Philosophy, Psychology, and Sociology. S-U options are not allowed in any course needed to fulfill major requirements.

Juniors and seniors majoring in the Department of Government who have superior grade records may apply for supervised study in government with a particular instructor, whose consent is required.

European Studies Concentration Government majors may elect to group some of their required and optional courses in the area of European studies, drawing from a wide variety of courses in relevant departments. Students are invited to consult Professors Katzenstein, Scheinman, and Tarrow for advice concerning course selection, foreign study programs, etc.

Honors A small number of exceptionally well-qualified students are accepted each year in the honors program. Admission is by application and is competitive. Students who wish to be considered must complete an application in the spring semester of their sophomore year. Those who are admitted will register for Government 400. Successful completion of Government 400 entitles the student to write an honors thesis (Government 494, eight credits) in the senior year, provided other requirements have been met. The decision to award honors and in what degree will be based on the quality of the thesis or paper, the student's record in government courses, and the student's overall record at Cornell.

Interested students should consult the supplement available in the departmental office in 125 McGraw Hall. Further inquiries may be addressed to the Director of Undergraduate Studies, 130 McGraw Hall.

Distribution Requirement

The distribution requirement in the social sciences may be satisfied by taking two of the following courses: Government 111, 131, 161, and 181; or by taking one of 111, 131, 161, or 181 followed by a 300-level course in the same area.

History

R. Polenberg, chairman; D. A. Baugh, A. H. Bernstein, S. Blumin, S. G. Cochran, T. H. Holloway, C. Holmes, I. V. Hull, J. J. John, M. Kammen, S. L. Kaplan, D. C. LaCapra, W. F. LaFeber, R. L. Moore, J. Najemy, M. B. Norton, C. A. Peterson, W. M. Pintner, W. B. Provine, P. A. Rahe, J. H. Silbey, F. Somkin, B. Tierney, J. Weiss, L. P. Williams, O. W. Wolters, D. K. Wyatt

The Major

To complete the history major, a student must have:

- 1) completed either the Introduction to Western Civilization (History 151–152) or the introduction to Asian Civilizations (History 190–191) or, alternatively, three courses in European history—one in ancient history; one in medieval, Renaissance, or early modern history; and one in modern history;
- 2) taken history courses totalling 34 credits, completing all these courses with a grade of C or better; of the 34 credits, 16 must be in courses numbered above 300, and of these 16, 8 must be in one particular field of history (such as modern American, ancient, early modern European history);
- 3) taken two courses above the elementary level offered by other departments that relate to the 8-credit concentration in one particular field of history.

Prospective majors may wish to discuss their projected program with the director of undergraduate studies before formally enrolling with the department.

Honors History majors with an overall B+ average in all their history courses are eligible to enroll in History 400, the Honors Proseminar, which is normally taken in the junior year or at the latest, in the fall of senior year. (Honors candidates are strongly encouraged to take another 400-level seminar during their junior year.) Students with a grade of B+ or higher in the proseminar may then become candidates for the degree of Bachelor of Arts with honors in history by submitting to a prospective faculty adviser a written thesis proposal delineating the general area of inquiry for an honors essay and having the proposal approved by the adviser. The proposal should be submitted as soon as possible after the completion of History 400, normally during the junior year or at the beginning of the senior year.

After acceptance of the proposal by an adviser, honors candidates should then enroll with their advisers in History 302, Supervised Research, during the first term of their senior year. History 302 is a four-credit course which permits honors candidates to conduct research and to begin writing the honors essay. At the end of the first semester of the senior year, as part of the requirements for History 302, the student will submit to his or her adviser a ten to fifteen page overview of the entire thesis or a draft of some substantial section of the thesis and will undergo an oral examination on the broad field of history which the student researched. The examination will be administered by a committee consisting of the student's adviser and one other department member, who will eventually serve as a reader of the thesis. The committee will then recommend whether the student may proceed to enroll in History 401, Honors Guidance, during the final semester of senior year. History 401 is a 4-credit course which permits honors candidates to complete the honors essay and to prepare both to defend the essay and to demonstrate their understanding of the general historical interests they have pursued within the major. Students who do not take History 400 in their junior year must submit both the thesis proposal and the prospectus by the end of the fall semester of their senior year in order to be eligible for enrollment in History 401 by their final semester.

Honors candidates must complete a minimum of 38 credits in history, 8 of which must be History 400–401. The completed thesis will be examined by three readers, including the two faculty members who administered the preliminary oral examination.

The text of the honors essay may not exceed sixty pages except by permission of the chairperson of the honors committee and the student's adviser. Two copies will be due during the third week of April. In May each honors candidate will be given an oral examination administered by the major adviser and one or both of the essay readers. The examination will focus on the specific issues of the essay as well as the broad field of history in which the student has concentrated his or her research (e.g. Periclean Athens, seventeenth-century science, nineteenth-century America).

To qualify for a Bachelor of Arts degree with honors in history, a student must (1) sustain at least a B+ cumulative average in all history courses; and (2) earn at least a *cum laude* grade on the honors essay and on the oral examination.

Students considering the honors program should consult Professors Wyatt, Najemy, or Kammen during the second term of their sophomore year or early in their junior year.

Distribution Requirement

The distribution requirement is satisfied by any two courses in history.

Underclass Seminars

The orientation of these introductory seminars will be historical, with considerable attention given to writing skills and the critical discussion of humanistic values. Particular attention will be given to questions of public policy, problems of social change, and the dimensions of comparative historical analysis.

Freshmen and sophomores are eligible for the seminars. No special background in history is required, but students who wish to enroll must obtain the permission of the instructor. The seminars will be limited in size to about ten students each. Some of the seminars may be taken, with the instructor's consent, to fulfill the Freshman Seminar requirement. A full list of seminars is available in the history department office.

History of Art

R. G. Calkins, chairman; T. M. Brown (on leave during the fall semester), E. G. Dotson, J. V. Falkenheim, C. E. Gilbert, R. C. Hobbs, H. P. Kahn, T. W. Leavitt, S. J. O'Connor (on leave), A. Ramage, A. S. Roe, M. W. Young

The Major

Students who wish to major in the history of art should complete two courses in the Department of History of Art by the end of their sophomore year. These courses should be completed with a grade of C or better and are prerequisites for admission to the major, but may not be counted toward fulfillment of the major requirements.

In their junior and senior years majors will work closely with their advisers to determine acceptable programs in the major field. The major should include at least 30 credits in history of art courses (24 of which must be at the 300 level or higher) and a minimum of two additional courses in this department or in a related area approved by the major

adviser. Courses at the 200 level or above taken in the freshman or sophomore years may be counted in fulfillment of the major provided that the courses are in addition to those taken as prerequisites to the major.

Majors are encouraged to take studio courses offered by the Department of Art, but these are considered to be electives and do not fulfill major requirements.

Honors In order to become a candidate for the degree of Bachelor of Arts with honors in the history of art, a student must have a cumulative average of B for all courses taken in the department. Admission into the program requires application to the department chairperson during the second term of the junior year; the application must include a summary of the proposed project, an endorsement by a faculty sponsor, and a copy of the student's transcript. In the senior year, the honors candidate will include among the regular requirements History of Art 493 and 494, which entail the preparation of a senior thesis. This program may not be condensed into one semester.

Distribution Requirement

The distribution requirement in expressive arts is satisfied by a combination of any two history of art courses at the 200 level or above, or by Archaeology 100 and one of the history of art courses listed under archaeology in *Cornell University: Description of Courses*.

Mathematics

S. Lichtenbaum, chairman; I. Berstein, L. Billera, J. Bramble, K. Brown, L. Brown, S. Chase, M. Cohen, R. Dennis, E. Dynkin, C. Earle, R. Farrell, M. Fisher, W. Fuchs, S. Gelbart, L. Gross, R. Hamilton, D. Henderson, J. Hubbard, P. Kahn, H. Kesten, A. Knapp, G. Livesay, O. McBryan, M. Morley, A. Nerode, L. Payne, R. Platek, A. Rosenberg, O. Rothaus, A. Schatz, S. Sen, R. Shore, F. Spitzer, R. Strichartz, M. Sweedler, L. Wahlbin, J. West, A. C. Zitronenbaum

Much time may be saved by a careful reading of this announcement.

Members of the department are available to discuss with students the appropriate courses for their levels of ability and interest, and students are urged to avail themselves of this help.

Students wishing to take any of the courses numbered 300 or above are invited to confer, before registering, with the instructor concerned.

Subject matter of courses indicated by the second digit: 0, general; 1, 2, analysis; 3, 4, algebra; 5, 6, topology and geometry; 7, probability and statistics; 8, logic; 9, other. The level of a course is indicated by the first digit of the course number: roughly, 1, 2, indicate underclass courses; 3, 4, upperclass courses; 5, 6, graduate courses.

Mid-term grades, when required, will be S or U only, except in special circumstances. In all 600-level courses, final grades will be S-U only, with the exception of 690. In courses with numbers below 600, students will receive letter grades, with the exception of nonmathematics majors who have requested an S-U grade.

Advanced Placement

Secondary school students are strongly urged to take one of the two advanced placement examinations of the College Entrance Examination Board in their senior year. In

addition, there will be a placement examination in mathematics offered at Cornell just before the beginning of classes in the fall which some students should take. It is most important that anyone with any knowledge of calculus carefully read "Advanced Placement of Freshmen."

The Major

Questions concerning the major in mathematics should be brought to a department representative. The general description of the options available follows.

Option I This option is appropriate for students who contemplate a Ph.D. in pure mathematics or applied mathematics. Prerequisites: calculus through the level of 221–222, and, if neither 122 nor 293 has been taken, also 217. Requirements: (a) 411–412, (b) 431–432, (c) at least 12 additional credits of mathematics courses numbered 300 or above, other than 311, 331, 332, 370; Computer Science 621, 622 may be included in these 12 credits, (d) one course from outside mathematics with serious mathematical content and dealing with scientific matters, or Mathematics 305.

The department strongly recommends that all prospective Option I majors take Physics 112 and 213 or 207–208 in their freshman year. Students should also seriously consider the offerings in differential equations, probability and statistics, and numerical analysis.

Option II This option is appropriate for those mainly interested in the application of mathematics or computer science. It does not prepare a student for work at the Ph.D. level in the theoretical side of mathematics, not even in the theoretical side of such areas as statistics and numerical analysis, unless 411–412 is taken. Students who plan to continue in mathematical economics, mathematical biology, or other applied areas should discuss their program with their adviser. Prerequisites: (a) calculus through the level of 221–222, and, if neither 122 nor 293 has been taken, also 217; (b) Physics 207–208 or 112 and 213. Requirements: (a) 421, 422; (b) 431, and either 332 or 432; (c) Computer Science 211 (with Computer Science 100 as prerequisite) (d) an approved 8-credit sequence in statistics, numerical analysis (in the Department of Computer Science), or differential equations; (e) at least 8 additional credits of courses numbered 300 or above in mathematics, computer science, or a physical science not including Mathematics 331 or 370 or Computer Science 100.

An alternate version with emphasis on computer science is offered. Prerequisites: (a) calculus through the level of 221–222, and, if neither 122 nor 293 has been taken, also 217; (b) Computer Science 100. Requirements: (a) 421–422 or 411 plus one additional course approved by the mathematics department; (b) 431 and either 332 or 432; (c) Computer Science 314, 410, and one of the following sequences: 321–322 and 481 or 414; 481–482 and 321 or 414; 611–612 and 321 or 481 or 414.

Students may also emphasize operations research. Prerequisites: (a) calculus through the level of 221–222, and, if neither 122 nor 293 has been taken, also 217; (b) Computer Science 100. Requirements: (a) 421–422 or 411 plus one additional course approved by the mathematics department; (b) 431 and either 332 or 432; (c) two of OR&IE 431, 432, 435, 630, 634; (d) OR&IE 320 and Mathematics 471; (e) OR&IE 321 or 361 or 561. (Operations research courses are offered by the College of Engineering.)

Option III This option is for students who wish to major in mathematics but do not intend to become professional mathematicians. It does not prepare a student for graduate work in mathematics. It is appropriate for premedical and prelaw students and for students who want to become teachers of secondary mathematics, but Cornell University no longer grants certification. Students interested in teacher training can get information from Professor Henderson. Prerequisites: calculus through the level of (a) 222 or (a') 214–215–216 and either 331 or 332. If neither 122 nor 293 has been taken, 217 is required. (b) Physics 101–102, or 207–208. Mathematics requirements: (a) 311, and 421 or 418; (b) 331, if 221 has not been taken; 332; (c) 451; (d) Computer Science 100; (e) 403 or 370 or 471, and eight additional credits of mathematics courses numbered above 300. It is recommended that 421 or 418, as required under (a) be completed in the junior year.

Honors in mathematics will be awarded on the basis of a high level of performance in departmental courses. Further requirements, if any, will be announced during the year.

Distribution Requirement

The distribution requirement is satisfied in mathematics by any 6 credits, not including more than one course from 105, 107, 403. Computer Science 100 may be used for three of these credits. The mathematics distribution requirement is also satisfied by a score of 3 on the CEEB calculus BC examination. Mathematics 109 or Orientation 115 (College of Agriculture and Life Sciences) do not satisfy the requirement.

Basic Sequences

College algebra and trigonometry are taught in Mathematics 109 and also in Orientation 5 and 115, offered by the College of Agriculture and Life Sciences. Mathematics 109 is designed to prepare students for Mathematics 108 or 111.

There are two sequences in elementary calculus and several special purpose sequences. The two elementary calculus sequences have 111 in common, for which, however, 191 or 193 may be substituted. The upper sequence continues with 122, 221, and 222, while the standard sequence continues with 112 and the package of one-credit courses 214–215–216–217. Students who desire to take advanced courses in theoretical mathematics should take the upper sequence, which is prerequisite to most of them. A student whose performance in 112 has been exceptional may be admitted into 221 but, if neither 122 nor 293 is taken, 217 is a prerequisite for a major in mathematics. A student in the standard sequence who wants the linear algebra material of 221 may obtain it in 331.

The special purpose sequences are 105–106, 107–108, and 191 or 193–192–293–294. The latter is primarily for engineers and is also recommended for physics majors. Mathematics 107–108 is intended primarily for students in the more descriptive areas of the social sciences, and will normally be terminal. 107–108 does not fulfill the mathematics requirement for biology majors. Mathematics 107 treats finite mathematics, and 108 gives an introduction to calculus; 108 may be taken without 107, and is preferable to 111 for students desiring only one semester of calculus. Mathematics 105–106 is similar to 107–108 but it presents mathematics from the point of view of the biologist.

Students who want a second semester of mathematics after Orientation 115 are advised to take 107 or 105, or, if they need a calculus course, 111. However, they cannot receive credit for both Orientation 115 and 108. Students interested in starting with two semesters of calculus should take Mathematics 111–112 or 111–122. Students who want two semesters of calculus can also follow 106 with 112 or 122; or 108 with 112 if they have done exceptionally well in 108. In exceptional circumstances they may follow 106 with 214–217, providing they make up some missing material on their own. Students wishing to switch between sequences may take 105 and 111, or 107 and 111.

Because the department offers many courses with overlapping content, students must choose their courses carefully to ensure that they will receive credit for each course they take. Listed below are groups of courses with similar content. Students will receive credit for only one of the courses in each group.

Mathematics Courses Grouped by Content

105 and 107

108 and Orientation 115 (College of Agriculture and Life Sciences)

106, 108, 111, 191, and 193

112, 122, 192, and 194

214 and 293

215 and 293

216 and 293

217 and 293

221 and 211

221 and 216

216 and 192

217 and 122

221, 293, and 331

Modern Languages, Literatures, and Linguistics

The Department of Modern Languages and Linguistics (R. L. Leed, chairman) offers courses in linguistics and elementary, intermediate, and advanced language courses. (Literature departments also offer some language courses.)

S-U options may be chosen for all courses offered by the department except for German 121–122–123 and Burmese, Thai, and Vietnamese.

The Department of German Literature (S. L. Gilman, chairman) offers courses in German, Yiddish, and Old Icelandic literatures. These courses reflect the heterogeneous composition of the department. They range from close readings of major texts through courses in culture and intellectual history. Major areas of specialization cover the period from the early Middle Ages to the twentieth century with stress on the eighteenth and nineteenth centuries. The department often jointly sponsors courses with other departments in the humanities such as music and the history of art.

The Department of Romance Studies (P. Lewis, chairman) offers courses in French literature, Italian literature, and Spanish literature. In addition, the department's program

seeks to encourage study of the interactions of the Romance literatures among themselves and with other literatures, both in its course offerings and in opportunities for independent study. Each term, one course will be offered in English which emphasizes comparative and methodological questions.

The Department of Russian Literature (S. Lottridge, chairman; G. Gibian, acting chairman) offers courses in Russian literature.

Courses

Courses in Swahili are offered by the Africana Studies and Research Center. Greek and Latin are offered by the Department of Classics. Akkadian, Arabic, Aramaic, and Hebrew are offered by the Department of Near Eastern Studies. Courses in Chinese and Japanese literature are offered by the Department of Asian Studies.

Arabic

See Near Eastern Studies.

Burmese

R. B. Jones

Cambodian

F. E. Huffman

Cebuano (Bisayan)

J. U. Wolff

Chinese

N. C. Bodman, S. L. Fessler, E. M. Gunn, C. Lin, J. McCoy, T. L. Mei, P. S. Ni, P. Wang

For a major involving Chinese Studies, see Asian Studies.

Dutch

F. C. van Coetsem

English as a Second Language

M. A. Martin

Placement in courses offered in English as a second language is by an examination, which is given before registration. For the date, time, and place of the examination, contact the Department of Modern Languages and Linguistics, 203 or 323B Morrill Hall. Courses may only be taken for credit.

French

J. Béreaud, D. Brewer, A. M. Colby-Hall, I. Daly, N. Furman, D.-I. Grossvogel, J. Harari, J. Herschensohn, S. Huffman, R. Klein, P. Lewis, S. A. Littauer, E. P. Morris, J. S. Noblitt, A. Seznec, L. R. Waugh

The Major in French is designed to give students proficiency in the oral and written language, to acquaint them with French literature and culture, and to develop skills in literary and linguistic analysis.

While prospective majors should try to plan their programs as far ahead as possible, no student will be refused admission merely because of a late start. It is even possible for a student to begin French at Cornell and become a major.

The major has a core, required of all majors, and two options which attempt to reflect the variety of student interests, yet maintain the focus for a coherent and substantial program of studies.

The Core

- 1) All majors are expected to acquire a sound degree of competence in language. This competence is demonstrated by the successful completion of French 312 or by the passing of a special examination to be taken no later than the end of the junior year. A typical program will involve two semesters of language at the 200 level (to be taken no later than the end of the sophomore year) and two semesters of language at the 300 level (311–312). Students may bypass any part of the sequence through placement examinations.
- 2) In addition, all majors are expected to take French 201 and French 202. At least one of these should be completed successfully no later than the end of the sophomore year.

The Options

The following groups intentionally overlap in part; yet each is intended to emphasize different aspects of French culture.

The literature option:

- 1) The successful completion of six additional courses in French literature or civilization at the 300 level or above. These courses will include at least one from each of the three major periods of French literature (medieval to the Renaissance; the seventeenth and eighteenth centuries; and the nineteenth and twentieth centuries).
- 2) The successful completion of a two-course sequence in one of the following: (a) French literature; (b) French linguistics; (c) French history, culture, music, or history of art or architecture; (d) courses in linguistic theory, history of language, psycholinguistics, or philosophy of language.

The linguistic option:

- 1) The successful completion of six courses in French and general linguistics (in addition to Linguistics 101–102). These courses will include at least one course in the history of French and one course in the structure of French.
- 2) The successful completion of two courses (preferably a sequence) in one of the following: (a) French literature and civilization, (b) psycholinguistics, (c) philosophy of language, (d) anthropological linguistics.

Whatever option a student chooses, he or she is encouraged to organize a program of study that will enrich the major with a variety of related courses in history, archaeology, Classics, comparative literature, English and American literature, anthropology, music, history of art, philosophy, government, linguistics, and other literature and languages.

French majors may study in France for a semester or a year during their junior year under any of the several study-abroad plans that are recognized by the Departments of Romance Studies and Modern Languages and Linguistics and allow for the transfer of credit. The director of undergraduate studies has information about such plans.

Students wishing to major in French should consult the director of undergraduate studies, Professor Béreaud, who will admit them to the major. After their admission, students

will choose an adviser from among the French faculty. Students interested in the linguistics option should consult Professor Waugh.

The honors program encourages well-qualified students to do independent work in French, outside the structure of courses. The preparation of the senior honors essay, generally involving three terms, provides a unique learning opportunity, since it allows for wide reading, careful outlining, and extensive rewriting to a degree not practically possible in the case of course papers. At each stage of their work, the students will have regular weekly meetings with faculty tutors.

No special seminars or courses are required of honors students. The junior tutorial (ordinarily two terms) will be devoted to intensive study of selected problems or authors and to the choice of a topic for the honors essay; the senior tutorial is devoted to the writing of that essay. Honors students may be released from one or two courses in either the junior or senior year to have adequate time for honors work. (Credit is obtained by enrolling in French 419–420.) Students will taken an informal oral examination at the end of the senior year.

Honors students are selected on the basis of their work in French language and literature courses in the freshman and sophomore years. Students interested should consult Professor Morris for details no later than the spring term of the sophomore year, and earlier if possible. Honors work in French linguistics will be supervised by Professor Waugh.

Distribution Requirement in the humanities is satisfied by French 200, 201 and 202, 222, or any 300-level literature course.

Germanic Studies

E. Augsberger, A. J. Berger, V. T. Bjarnar, E. A. Blackall, H. Deinert, I. Ezergailis, S. L. Gilman, A. Groos, W. Harbert, P. Hohendahl, J. Jasanoff, I. Kovary, H. L. Kufner, P. W. Nutting, J. P. Stern (professor-at-large), G. Valk, F. C. van Coetsem

The German Major Students majoring in German are encouraged to design their program in a manner that will allow for diversity in their course of study. It should enable them to become acquainted with an adequate selection of major works, authors, and movements of German literature and to develop their skill in literary analysis.

Students majoring in German will normally proceed through German 201, 202, 203, 204. Students who, because of previous training, are qualified to enroll in 300- or 400-level courses will be permitted to do so. For details, students may consult the major advisers, H. Deinert in the Department of German Literature or H. L. Kufner in the Department of Modern Languages and Linguistics. Students majoring in German are expected to complete successfully a minimum of six 300- and 400-level courses in addition to German 303–304. These courses should be a representative selection of subjects in German literature and/or Germanic linguistics. The attention of students majoring in German is called to the courses offered by the Department of Comparative Literature, many of which complement the course offerings in German.

Students majoring in German are expected to become competent in the German language. This competence is normally demonstrated by the successful completion of German 304. Placement of German majors who have done

no work in German at Cornell will be determined by the level of preparation they have obtained elsewhere. For information please consult the major advisers, H. Deinert or H. L. Kufner. All German majors, particularly those who have had no German prior to coming to Cornell, are encouraged to spend at least part of their junior year abroad.

The German Area Studies Major is intended for students who are interested in subject matter related to German-speaking countries, but not necessarily or not exclusively in German literature or linguistics. Students will select appropriate courses offered in history, government, economics, music, and theatre arts. These students will select a committee of two or more faculty members to help them design a program and supervise their progress. One committee member must be from the German faculty of either the Department of Modern Languages and Linguistics or the Department of German Literature. The other member(s) should represent the student's main area of interest.

The student majoring in German area studies is expected to become competent in the German language. Such competence is normally demonstrated by successful completion of German 304. A minimum of six area courses above the 200 level is required for the major.

The honors program in German is open to superior students who wish to work independently in an area of their own choice. Students are free to select any member of the Field of Germanic Studies to assist them in designing their honors program, to supervise their work, and to help them select a suitable topic for an honors essay. The independent study courses 451 and 452 may form part of the program.

Freshman Seminar Requirement The following courses will satisfy the Freshman Seminar requirement: German 105, 109, 211, and 312. For details, please consult the instructors.

Distribution Requirement in the humanities is satisfied by any two German literature courses at the 200 level and above.

Modern Greek

See Classics.

Modern Hebrew

See Near Eastern studies.

Hindi-Urdu

J. W. Gair, G. B. Kelley

Indonesian

J. U. Wolff

Italian

A. Grossvogel, G. Mazzotta, C. Rosen

The Major Students who wish to major in Italian should choose a faculty member to serve as major adviser; the general plan and the details of the student's course of study will be worked out in consultation. Italian majors are encouraged to take courses in related subjects such as history, art history, music, philosophy, anthropology, Classics, linguistics, and other modern languages and

literatures. While a major often occupies only the junior and senior years, it is wise for students to seek faculty advice about the major as early as possible.

Students who elect to major in Italian ordinarily should have completed Italian 203–204 and the 201–202 sequence in Italian literature by the end of their sophomore year. Exemptions can be made on the basis of an examination. Students majoring in Italian are expected to become conversant with a fair portion of the masterworks of Italian literature, to acquaint themselves with the outlines of Italian literary history, and to develop some skill in literary analysis. To this end students will be expected to complete successfully 24 credits of Italian literature courses at the 300 level or higher, with papers to be written in Italian or English. One or more courses offered by the Department of Comparative Literature may be counted toward the required 24 credits if students obtain the prior approval of their major adviser. Italian 402, History of the Italian Language, and 403, Structure of Italian, may be counted toward the 24 credits required for the major (an introductory linguistics course is a prerequisite of Italian 402 and 403).

Students majoring in Italian also will be expected to acquire competence in the handling of the language. That competence may be demonstrated by passing an oral and written examination to be arranged with the adviser.

Italian majors may study in Italy, generally during their junior year, under any one of those study-abroad plans organized by American universities that allow the transfer of grades and credit, such as the Syracuse Semester in Italy in Florence.

Distribution Requirement in the humanities may be satisfied by Italian 201–202.

Japanese

K. Brazell, M. B. deBary, M. Hamada, E. H. Jorden, R. Sukle

For a major involving Japanese studies, see Asian Studies.

Javanese

J. U. Wolff

Linguistics

L. H. Babby, N. C. Bodman, J. S. Bowers, E. W. Browne, J. W. Gair, J. E. Grimes, W. Harbert, J. Herschensohn, C. F. Hockett, F. E. Huffman, J. Jasanoff, R. B. Jones, Jr., E. H. Jorden, G. B. Kelley, L. D. King, H. L. Kufner, R. L. Leed, S. McConnell-Ginet, J. McCoy, G. M. Messing, J. S. Noblitt, C. Rosen, D. F. Solá, M. Suñer, F. C. van Coetsem, L. R. Waugh, J. U. Wolff

The Major in linguistics has three prerequisites: (1) completion of Linguistics 101–102, (2) qualification in two languages, one from the familiar European group (Latin, Greek, French, Italian, Portuguese, Spanish, German, Russian) and one from the other languages offered at Cornell, and (3) 6 credits of course work beyond qualification in one of the languages studied. In some cases students may be unable to attain qualification in a non-European language before entering the major, in which case the requirement may be completed after students are admitted to the major.

Completion of the major requires: (1) Linguistics 303, 304, and a course in syntax (either Linguistics 306 or 411); (2) a course at or beyond the 300 level in the structure of English

or some other language or a typological or comparative structure course such as Linguistics 401; (3) a course in historical method such as Linguistics 404, 410, or the history of a specific language or family; and (4) a minimum of eight additional credits in linguistics in consultation with the adviser. With the adviser's approval, four credits of the latter may be in a course in a related discipline with a significant linguistic component, such as psycholinguistics, language acquisition, or anthropological linguistics. Prospective majors should see Professor Gair.

For other courses relevant to linguistics see anthropology, psychology, human development and family studies, computer science, and philosophy.

Honors Applications for honors should be made during the junior year. Candidates for admission must have a 3.0 (B) average overall and should have a 3.2 average in linguistics courses.

In addition to the regular requirements of the major, the candidate for honors will complete an honors thesis and take a final oral examination in defense of it. The thesis is usually written during the senior year, but may be begun in the second term of the junior year when the student's program so warrants. The oral examination will be conducted by the honors committee, consisting of the thesis adviser and at least one other faculty member in linguistics.

Members of other departments may serve as additional members if the topic makes this advisable. Linguistics 493 and 494 may be taken in conjunction with thesis research and writing, but are not required.

Distribution Requirement Linguistics 101–102, or the combination Linguistics 111–112 or Linguistics 101 and any other course for which 101 is a prerequisite satisfies the distribution requirement in the social sciences.

Pali

J. W. Gair

Polish

E. W. Brown

Portuguese

L. D. King

Quechua

D. F. Solá

Romanian

S. Huffman

Russian

L. H. Babby, E. W. Browne, P. J. Carden, G. Gibian, R. L. Leed, A. Nahkimovsky, V. Ripp, M. Senderovich, S. Senderovich

Russian Majors study Russian language, literature, and linguistics, emphasizing their specific interests. It is desirable, although not necessary, for prospective majors to complete Russian 101–102, 201–202, and 203–204 as freshmen and sophomores since these courses are prerequisites to most of the junior and senior courses that count toward the major. Students may be admitted to the major upon satisfactory completion of Russian 102 or the equivalent. Students who elect to major in Russian should consult both Professor Gibian and Professor Leed as soon as possible. For a major in Russian, students will be

required to complete: (1) Russian 301–302 or 303–304 or the equivalent; (2) 18 credits from 300- and 400-level literature and linguistics courses, of which 12 credits must be in literature in the original language.

Honors Students taking honors in Russian undertake individual reading and research and write an honors essay.

Russian and Soviet Studies Major See "Special Programs and Interdisciplinary Studies," which follows the department listings.

Distribution Requirement in the humanities may be satisfied by any two Russian literature courses at the 200 level and above.

Sinhala (Sinhalese)

J. W. Gair

Spanish

U. J. DeWinter, L. D. King, J. W. Kronik, C. Morón-Arroyo, C. Piera, M. Randel, E. M. Santí, M. Suñer, J. Tittler

The Major is designed to give students proficiency in the oral and written language, to acquaint them with Hispanic culture, and to develop their skill in literary and linguistic analysis. Satisfactory completion of the major should enable students to meet language and literature requirements for teaching, to continue with graduate work in Spanish, or to satisfy standards for acceptance into the training programs of the government, social agencies, and business concerns. A Spanish major combined with another discipline may also allow a student to undertake preprofessional training for graduate study in law or medicine.

Students interested in a Spanish major are encouraged to seek faculty advice as early as possible. For acceptance into the major, students should consult with the director of undergraduate studies in Spanish, Professor Tittler (269 Goldwin Smith Hall), who will admit them to the major, and choose an adviser from the Spanish faculty of either the Department of Romance Studies or the Department of Modern Languages and Linguistics. Spanish majors will then work out a plan of study in consultation with their advisers. Previous training and interests, as well as vocational goals, will be taken into account when the student's program of courses is determined.

Spanish 201 and 204 (or equivalent) are prerequisite to entering the major in Spanish. All majors will normally include the following core courses in their programs:

- 1) two literature courses of the 315–316–317 series
- 2) 303 and 312 (or equivalent)

Spanish majors have great flexibility in devising their programs of study and areas of concentration. Some typical options of the major are:

- 1) Spanish literature, for which the program of study normally includes at least 24 credits of Spanish literature beyond the core courses.
- 2) Spanish linguistics, for which the program normally includes 401, 407, 408, and at least 12 additional credits in general or Spanish linguistics. (Linguistics 101–102 are recommended before entering this program.) Students interested in including linguistics in their programs should consult with the coordinator of Spanish for the Department of Modern Languages and Linguistics (M. Suñer).

- 3) A combination of literature and linguistics.

- 4) Any of the above options with certain courses in other disciplines counted towards the major.

Whichever option a student chooses, he or she is encouraged to enrich the major program by including a variety of courses from related fields or by combining Spanish with related fields such as history, philosophy, sociology, anthropology, art, music, Classics, English, comparative literature, and other foreign languages and literatures.

Spanish majors are encouraged to spend all or part of the junior year in a Spanish-speaking country on one of the study-abroad programs organized by American universities that allow the transfer of grades and credits.

The J. G. White Prizes and Scholarships are available annually to students who achieve excellence in Spanish.

Honors in Spanish may be achieved by superior students who wish to undertake guided independent reading and research in an area of their choice. Students in the senior year select a member of the Spanish faculty from either the Department of Romance Studies or the Department of Modern Languages and Linguistics to supervise their work and direct the writing of the honors essay (see Spanish 429–430).

Distribution Requirement in the humanities may be satisfied by any two of the following courses: 201, 315, 316, 317, or any 300-level literature course.

For the social sciences the distribution requirement may be satisfied by Linguistics 101 plus any Spanish linguistics course for which Linguistics 101 is prerequisite.

Tagalog

J. U. Wolff

Tamil

J. W. Gair

Telugu

G. B. Kelley

Thai

R. B. Jones, Jr., R. Mendiones

Vietnamese

F. E. Huffman

Music

N. Zaslaw, chairman; W. W. Austin, C. A. Barbera, M. Bilson, C. Greenspan, J. Hsu, K. Husa, M. Keller, S. Monosoff, E. Murray, R. M. Palmer, D. R. M. Paterson, D. M. Randel, T. A. Sokol, M. W. Stith, B. Troxell, J. Webster

The Major

There are two options available to the student planning to major in music. At the core of both options is a program which carries the study of music to an advanced level through the deliberate integration of performance, music theory, and music history. This core program sets standards which the Department of Music believes all serious students of music must meet, regardless of the role that music may ultimately play in their lives. Option I is designed to allow the student greater opportunity to elect courses in

fields other than music. Option II is designed for the student interested in a more specialized program with a view toward graduate study and a career in music.

Option I presupposes some musical background and the satisfactory completion of Music 151–152 by the end of the sophomore year. Students must take a piano examination before admission to the major and will be expected to remedy through further study any deficiencies that may be revealed.

The requirements for the Bachelor of Arts degree with a major in music under Option I include four semester courses in music theory (251–252 and 351–352) three semester courses in music history (381–382) plus one other numbered 300 or above, and four semesters of participation in a musical organization or ensemble.

Option II presupposes considerable musical studies before entering and the satisfactory completion of Music 251–252, normally by the end of the sophomore year. Students must take a piano examination before admission to the major and will be expected to remedy through further study any deficiencies that may be revealed.

The requirements for the Bachelor of Arts degree with a major in music under Option II include three semester courses in music theory (351–352 and 451 or 453), three semester courses in music history (381–382 plus one other numbered 300 or above), and two semesters of participation in a musical organization.

In addition, the student majoring in music under Option II will concentrate in one of the areas listed below.

- 1) *Theory and Composition* The student concentrating in theory and composition will elect, during the junior and senior years, four additional semester courses in this area plus Music 462 or 463. These courses may include Music 401–402.
- 2) *Music History* The student concentrating in music history will elect, during the junior and senior years, four additional semester courses in this area plus Music 462 or 463. These courses may include Music 401–402. Two of the four may be drawn from the offerings of other departments.
- 3) *Performance* The student who has shown exceptional promise as a performer during the freshman and sophomore years, as demonstrated in part by a solo recital, may concentrate in performance by electing, during the junior and senior years, four semesters of private instruction in his or her major instrument (Music 391–392), plus two semesters of chamber music (Music 441–442).

Students contemplating a program in music under either option should arrange for placement examinations and auditions during the orientation period of the freshman year, or earlier if possible. Before entering the major, each student should choose an adviser from among the department's faculty members.

Honors The honors program in music is intended to provide a special distinction to the department's ablest undergraduate majors. To become a candidate for honors in music a student must be invited by the faculty at the beginning of the second semester of the junior year. As soon as possible thereafter, the student will form a committee of three faculty members to guide and evaluate

the honors work. In the senior year the candidate will enroll in Music 401–402 with the chairperson of the honors committee as instructor. Candidates will be encouraged to formulate programs that will allow them to demonstrate their total musical ability. The level of honors conferred will be based on the whole range of the independent work in this program of which a major part will culminate in an honors thesis, composition, or recital, to be presented not later than April 1 of the senior year, and a comprehensive examination to be held not later than May 1.

Distribution Requirement

The distribution requirement in the expressive arts may be satisfied with 6 credits in music. A maximum of 3 credits in courses from Music 331 through 338 and 441 through 448 may be used to satisfy this requirement.

Choral and Instrumental Ensembles

Choral and instrumental ensembles are trained and directed by members of the department staff each term, and all students who are interested are invited to join one or more of these groups. These ensembles include the Sage Chapel Choir, the Cornell Chorus, the Cornell University Glee Club, the bands (marching band, wind ensemble, symphonic band, brass ensembles), the Cornell Symphony Orchestra, the Cornell Chamber Orchestra, the Gamelan Ensemble, the Collegium Musicum, the Chamber Singers, and chamber music groups. For rehearsal hours and conditions for academic credit, consult the listings for Music 331 through 338 and 441 through 448 in *Cornell University: Description of Courses*. Announcements of tryouts for all organizations will be made at the beginning of fall and spring terms.

Music Library

The Music Library, in Lincoln Hall, has an excellent collection of the standard research tools. Its holdings consist of approximately sixty thousand books and scores and fifteen thousand records. Particularly noteworthy are the collections of opera scores, librettos, and recordings from all periods; twentieth-century scores and recordings; and the large microfilm collection of Renaissance sources, both theoretical and musical. In addition the Department of Rare Books in Olin Library houses a collection of early printed books on music and musical manuscripts.

Musical Instruments

The Verne S. Swan collection of about thirty musical instruments is especially rich in old stringed instruments. A small Challis harpsichord and clavichord are available for practice; a Dowd harpsichord, a Hubbard harpsichord, and a replica of a Stein fortepiano are reserved for advanced students and concerts. There is an Aeolian-Skinner organ in Sage Chapel, a Schlicker organ at Barnes Hall, and a Hellmuth Wolff organ in Anabel Taylor Chapel. A studio for electronic music is housed in Barnes Hall.

Concerts

The Department of Music and the Faculty Committee on Music sponsor more than ninety concerts each academic year by world-renowned musicians, faculty members, and students—including an annual festival of contemporary music.

Near Eastern Studies

D. I. Owen, chairman; J. Cohen, M. F. Collins, M. B. Schub, J. M. Weinstein

The Department of Near Eastern Studies offers Cornell undergraduates access to the history and archaeology, civilization and culture, philosophy and thought of the cultures that produced Judaism, Christianity, and Islam, and that today help define and characterize the many millions of people who live in the countries of the Middle East. The area, often called the "Cradle of Civilization," is the homeland of many of the earliest written languages, including the Semitic languages of the Bible and of the Koran, as well as other literatures of intrinsic merit and interest. These languages have exerted profound influence on the literatures of many civilizations, ancient and modern, Eastern and Western, including our own. The study of the Near East is, therefore, of seminal importance for our understanding of the emergence of Western civilization.

The department's offerings cover the historical span from the prehistory of the ancient Near East through the history of modern Israel, with primary focus on the ancient and medieval periods. Although generally restricted to the region of the Near East, courses in Jewish studies and medieval Jewish history necessarily encompass Western Europe: Studies pursued in this department will be found of lasting value to all whose career interests involve the cultures of the ancient Near East, the modern Middle East, and the field of Jewish studies.

Majors

The department offers students majors in three areas: Near Eastern languages and literatures, Near Eastern and biblical civilizations, and Judaic studies.

Near Eastern Languages and Literatures Those who major in Near Eastern languages and literatures must successfully complete (a) proficiency in Hebrew and qualification in a second Semitic language; (b) an additional 24 credits selected from courses listed under Akkadian, Arabic (211 and above), Aramaic, Ethiopic, Hebrew (202 and above), Ugaritic, ancient Near Eastern literature, biblical literature, rabbinic literature, Arabic literature, history of ancient Near Eastern civilizations, Near Eastern and biblical archaeology; (c) and 15 credits in related subjects listed under history of the Jewish people, modern Hebrew literature, or any courses in the humanities selected in conference with the adviser.

Near Eastern and Biblical Civilizations Those who major in Near Eastern and biblical civilizations must successfully complete (a) qualification in Classical Hebrew or one other Semitic language; (b) an additional 24 credits selected from the courses listed under biblical literature, history of the Jewish people (ancient and medieval), history of ancient Near Eastern civilizations, ancient Near Eastern literature, Near Eastern and biblical archaeology, and advanced Semitic language courses; (c) and 15 credits in related subjects. Related subjects for this purpose may be any courses in the humanities selected in conference with the adviser.

Judaic Studies Students who major in Judaic studies must successfully complete (a) proficiency in Hebrew equivalent to the completion of 202 or 232 and the two-semester survey of Jewish history, 244–245; (b) an additional 20 credits of advanced courses listed under

"History of the Jewish People," "Biblical and Rabbinic Literature," "Medieval and Modern Hebrew Literature," or in the Program of Jewish Studies; and (c) three courses in related subjects in the humanities selected in conference with the adviser.

Study Abroad Near Eastern studies majors may choose to study in the Near East in their junior year. There are various academic programs in Israel and Egypt that are recognized by the Department of Near Eastern studies and that allow for the transfer of credit. Archaeological field work on Cornell-sponsored projects in the Near East or recognized field schools in Israel may also qualify for course credit.

Honors Candidates for the degree of Bachelor of Arts with honors in Near Eastern languages and literatures, Near Eastern and biblical civilizations, and Judaic studies, must fulfill the requirements of the appropriate major study and enroll in the honors course 400 in the first semester of their senior year. For admission to the honors program candidates must have a cumulative average of B– or better and have demonstrated superior performance in Near Eastern studies courses. After consulting their major adviser, candidates should submit an outline of their proposed honors work to the department during the second semester of their junior year.

Distribution Requirement

The distribution requirement in humanities may be satisfied by any two Near Eastern studies courses at the 200 level or above (except language courses) which form a reasonable sequence. Sequences in history and archaeology such as 243–244, 244–245, 245–347, 285–387, or 385–481 or those in literature such as 221–222, 231–232, 260–261, 333–334, or 361–362 may be taken.

Program of Jewish Studies

The field of Jewish studies encompasses a broad spectrum of disciplines that includes language, literature, philology, and history. The Department of Near Eastern Studies offers students the opportunity to take a wide variety of courses in Jewish studies on all levels. Furthermore, cooperating faculty in other departments periodically offer additional courses in Jewish studies whose subjects are not represented in this department. Students interested in planning a program in Jewish studies should consult the coordinator, J. Cohen.

Philosophy

D. B. Lyons, chairman; J. G. Bennett, R. N. Boyd, G. Fine, C. A. Ginet, H. Hodes, T. H. Irwin, N. Kretzmann, R. W. Miller, S. Shoemaker, R. C. Stalnaker, N. L. Sturgeon, A. W. Wood

Any philosophy course numbered in the 100s or 200s is suitable for beginning study in the field. Sections of Philosophy 100 are part of the Freshman Seminar program; they are taught by various members of the staff on a variety of philosophical topics, and because of their small size (twenty students at most) they provide ample opportunity for discussion. Students who want a broad introduction to philosophy may take Philosophy 101, Philosophical Classics, which focuses on recognized classics in the principal areas of philosophy. Philosophy 131, Logic: Evidence and Argument, deals with the analysis and evaluation of arguments of all sorts. It is not a general

introduction to philosophy, but the skills it develops are useful in all areas of study, including philosophy. Many students with special interests find that the best introduction to philosophy is a 200-level course in some particular area of philosophy; such courses have no prerequisites and are usually open to freshmen.

The Major

Students expecting to major in philosophy should begin their study of it in their freshman or sophomore year. Admission to the major is granted by the director of undergraduate studies of the department on the basis of a student's work during the first two years.

Eight philosophy courses are required for the major. They must include at least one course in ancient philosophy, at least one course in the history of philosophy other than ancient philosophy, and a minimum of three courses numbered above 300, at least one of which must be numbered above 400 (with the exception of 490). Philosophy 231, while not required, is especially recommended for majors or prospective majors.

Philosophy majors must also complete at least 8 credits of course work in related subjects approved by their major advisers.

Occasionally majors may serve as teaching or research aides, working with faculty members familiar with their work.

Honors A candidate for honors in philosophy must be a philosophy major with a B- or better for all work in the College of Arts and Sciences and an average of B or better for all work in philosophy. In either or both terms of the senior year a candidate for honors enrolls in Philosophy 490 and undertakes research leading to the writing of an honors essay by the end of the final term. Prospective candidates should apply at the Department of Philosophy office, 218 Goldwin Smith Hall.

Distribution Requirement

The distribution requirement in the humanities may be satisfied by completing any two courses in philosophy, with the following exceptions: (a) Philosophy 100 if used in satisfying the Freshman Seminar requirement; (b) a combination of two courses in formal logic, such as 231, 331, 431, 432, and 436.

Physics

D. B. Fitchen, chairman; V. Ambegaokar, N. W. Ashcroft, K. Berkelman, H. A. Bethe (emeritus), R. Bowers, G. C. Brown, D. G. Cassel, G. V. Chester, R. M. Cotts, J. W. DeWire, M. E. Fisher, M. Gilchriese, B. Gittelman, K. Gottfried, S. Gregory, K. Greisen, L. N. Hand, D. L. Hartill, D. F. Holcomb, T. Kinoshita, J. A. Krumhansl, D. M. Lee, R. M. Littauer, B. D. McDaniell, H. Mahr, N. D. Mermin, H. F. Newhall, J. Orear, R. O. Pohl, J. D. Reppy, R. C. Richardson, E. E. Salpeter, J. C. Scott, R. H. Siemann, A. J. Sievers, E. Siggia, R. H. Silsbee, A. Silverman, P. C. Stein, R. M. Talman, S. A. Teukolsky, M. Tigner, D. H. White, J. W. Wilkins, K. G. Wilson, T. M. Yan, D. R. Yennie

Three introductory physics sequences are open to freshmen: 101–102, 112–213–214–315, and 207–208. In addition, there is a cluster of general-education courses 201 through 204. Physics 101–102, a self-paced autotutorial course, is designed for students who do not intend to go into physics and who do not have preparation in calculus. Physics 112 and 207 both require calculus (Mathematics 191 or 111), and additional mathematics is required for subsequent courses in sequence. 101–102 or 207–208 may be taken as terminal physics courses. The three- or four-term sequence 112–213–214 (–315) is recommended for physics majors and engineers.

For those wishing to pursue some physics beyond the introductory level, several courses may be appropriate: Physics 330, Modern Experimental Optics; Physics 360, Introductory Electronics.

Advanced placement and credit are offered as outlined in "Advanced Placement of Freshmen," or students may consult Professor Cotts, 522 Clark Hall. Transfer students requesting credit for physics courses taken at another college should consult the department office.

The Major

Various options permit the student to concentrate heavily on physics, or to take less physics and pursue an accompanying constellation of courses in a related area. Those desiring a physics concentration as preparation for professional or graduate work should complete 112–213–214 or 112–217–218 (and preferably 315) by the end of the sophomore year. A basic preparation for a less intensive physics program may include 112–213–214 or 207–208. In either case, it is necessary to complete a concurrent sequence of mathematics courses: Mathematics 191–192–293–294 or 193–194–295–296 are normally recommended, except for students especially interested in continuing the study of pure mathematics, for whom Mathematics 111–122–221–222 (or equivalent) may be preferred.

Prospective majors are urged to make an early appointment at the physics office for advice in planning their programs. Acceptance into the major is normally granted after completion of a year of physics and math at a satisfactory level; the student should propose a tentative plan for completing his or her graduation requirements as well as those for the major. The plan may change from time to time, but it must be approved by the major adviser. The major requirements have two components—a core and a concentration.

Core requirements for the major include

- 1) 112–213–214 (or 112–217–218) or 207–208;
- 2) an intermediate physics course in each of four areas: (a) mechanics—Physics 431 or 318; (b) electricity and magnetism—Physics 432 or 325; (c) modern physics—Physics 315 or 443; and (d) laboratory physics—Physics 310, 330, 360, or 410.

Mathematics courses prerequisite for these physics courses are also necessary. The choice of core is influenced by the intended concentration. For a concentration in physics, 112–213–214 (or 112–217–218), 318, 325, 315 or 443, and 410 is appropriate, while for concentrations outside physics part (2) of the core might consist of 315, 431, 432, and 410.

Concentration reflects the student's interest in some area related to physics; the array of courses must have internal coherence. The concentration must include at least 15 credits, with at least 8 credits in courses numbered above 300. Students have chosen to concentrate in physics; mathematics; biology; chemistry; astrophysics; natural sciences; engineering; computer science; science, technology, and society; environmental studies; intellectual history; history and philosophy of science; city planning and urban development; business and economics.

The concentration in physics is recommended as preparation for professional or graduate work in physics or a closely related discipline. Twelve credits from physics courses above 300, in addition to those selected for part (2) of the core, are required; the program must include Physics 410. The following courses are strongly recommended: Physics 443; Mathematics 421, 422, and 423; and at least one of Physics 341, Physics 444, Physics 454, Applied and Engineering Physics 401, Astronomy 431–432, or Geological Sciences 485–486. Students with a concentration in physics who wish to emphasize preparation for astronomy or astrophysics should consult the astronomy section of this announcement.

A combined biology-chemistry concentration is recommended for premedical students or those who wish to prepare for work in biophysics. The concentration in natural science is particularly appropriate for teacher preparation.

Foreign Language Requirement Students interested in eventual graduate work in physics are advised to meet this requirement with French, German, or Russian.

Honors A student may be granted honors in physics upon the recommendation of the Physics Advisers Committee of the physics faculty.

Distribution Requirement

The requirement in physical sciences is met by any two sequential courses such as 101–102 or 207–208; or by any two general-education courses from the group 201–204.

Course Prerequisites

Prerequisites are specified in physics course descriptions to illustrate the materials that students should have mastered. Students who wish to plan programs different from those suggested by the prerequisite ordering are urged to discuss their preparation and background with a physics adviser or with the instructors in the courses. In many cases an appropriate individual program can be worked out without exact adherence to the stated prerequisites.

Psychology

B. P. Halpern, chairperson; E. K. Adkins, D. Bem, S. Bem, F. Berger, A. W. Boykin, U. Bronfenbrenner, L. A. Cooper, J. P. Cunningham, R. B. Darlington, R. Dworkin, H. M. Feinstein, B. L. Finlay, E. J. Gibson, J. J. Gibson, R. E. Johnston, S. C. Jones, F. Keil, R. Kraut, W. W. Lambert, H. Levin, D. Levitsky, J. B. Maas, R. D. Mack, L. Meltzer, U. Neisser, D. T. Regan, T. A. Ryan, K. E. Weick, D. M. Zahorik

The major areas of psychology represented in the department are human experimental psychology, biopsychology, and personality and social psychology.

These areas are very broadly defined and the courses are quite diverse. Biopsychology includes such things as animal learning, neuropsychology, and interactions between hormones, other biochemical processes, and behavior. Human experimental psychology includes such courses as cognition, perception, memory, and psycholinguistics. Personality and social psychology is represented by courses and fieldwork in psychopathology as well as courses in social psychology and personality (such as theories of personality, beliefs and attitudes, and sex roles). In addition to the three major areas mentioned above the department also emphasizes the statistical and logical analysis of psychological data and problems.

Faculty interests and courses frequently bridge fields. For example, the course in human ethology combines the interests and methods of social psychology and animal ethology. Courses on thought and intelligence consider the concepts underlying the measurement of intelligence and their relationship to problem solving. A course on the nature and influence of psychotherapy provides exposure to various psychotherapeutic approaches.

The Major

Prerequisites for admission to the major are:

- 1) any three courses in psychology (students often begin with Psychology 101);
- 2) no grade below C+ in any psychology course; and
- 3) acceptance by the Majors and Advising Committee of the Department of Psychology.

Application forms may be obtained at the department office and should be filed two weeks before the course enrollment period.

Requirements for the major are:

- 1) a total of 40 credits in psychology (including prerequisites) from which students majoring in psychology are expected to choose, in consultation with their advisers, a range of courses that covers the basic processes in psychology (laboratory and/or field experience is recommended); and
- 2) demonstration of proficiency in statistics before the beginning of the senior year (see section below).

It is normally expected that all undergraduate psychology majors will take at least one course in each of the three areas listed below.

- 1) *Human experimental psychology*: Psychology 190, 205, 209, 214, 215, 305, 309, 313, 316, 411, or 416
- 2) *Biopsychology*: Psychology 123, 303, 322, 324, 326, 361, 422, 425, 491, or 693
- 3) *Social, personality, and abnormal psychology*: Psychology 128, 206, 275, 277, 280, 281, 289, 325, 327, 381, 384, 385, 402, 426, 469, 481, 482, 483, 484, 486, 488, or 489

The major adviser determines which group, if any, a course not listed above may be applied to. With the permission of the adviser courses in other departments may be accepted toward the major requirements.

Fieldwork, Independent Study, and Teaching The department requires students to observe the following limits on fieldwork, independent study, and teaching.

- 1) Undergraduates may not serve as teaching assistants for psychology courses if they are serving as teaching assistants for any other courses during the same semester.
- 2) No undergraduate may receive more than 8 credits for serving as a teaching assistant in psychology.
- 3) An undergraduate psychology major cannot apply more than 12 of the credits earned in independent study (including honors work), fieldwork, and teaching assistantships toward the 40 credits required by the major.

Statistics Requirement Proficiency in statistics can be demonstrated in any one of the several ways listed below.

- 1) Passing Psychology 350 or Psychology 471.
- 2) Passing an approved course or course sequence in statistics in some other department at Cornell. The approved list of courses and sequences may change. It has usually included Education 452–453, I&LR 210–311, and Sociology 325. An up-to-date list is posted outside 232 Uris Hall. Requests that a particular course be added to this list may be made to Professor Darlington.
- 3) Passing a course or course sequence in statistics at some other college, university, or college-level summer school. The course or sequence must be equivalent to at least 6 semester credits. The description of the course from the college catalog and the title and author of the textbook used must be submitted to Professor Darlington for approval.
- 4) Passing an exemption examination. This examination can be given at virtually any time during the academic year, if the student gives notice at least one week before. Most students selecting this option have not found it too difficult. Students who have completed a theoretical statistics course in a department of mathematics or engineering and who wish to demonstrate competence in applied statistics usually find this option the easiest. Students planning this option should discuss it in advance with Professor Darlington. A handout describing the examination is available from his secretary.

The Concentration in Biopsychology Psychology majors interested in psychology as a biological science can elect to specialize in biopsychology. Students in this concentration must meet all of the general requirements for the major in psychology and must also demonstrate a solid background in introductory biology; the physical sciences, including at least introductory chemistry; and mathematics. Students will design with their advisers an integrated program in biopsychology built around courses on physiological, chemical, anatomical, and ecological determinants of human and nonhuman behavior offered by the Department of Psychology. Additional courses in physiology, anatomy, organic chemistry, biochemistry, neurochemistry, neurobiology, and behavioral biology may be designated as part of the psychology major after consultation between the student and his or her biopsychology adviser.

The Concentration in Personality and Social

Psychology is offered in cooperation with the Department of Sociology. Psychology majors who wish to specialize in social psychology are expected to meet the general requirements set by their department, including statistics. To ensure a solid interdisciplinary grounding students in the concentration will be permitted to include in the major courses in sociology and related fields. Advisers will assist students in the selection of a coherent set of courses from social organization, cultural anthropology, experimental psychology, social methodology, and several aspects of personality and social psychology. Seniors in the concentration may elect advanced and graduate seminars, with the permission of the instructor.

The Honors Program is intended to give students an opportunity to examine selected problems in depth and to carry out independent research under the direction of a faculty member. During the spring term of the junior year, an honors student will enroll in Psychology 494 and will develop a proposal and begin work on a research project. The student will arrange a meeting with an honors adviser and a faculty sponsor. At the end of the spring term, a report of the semester's work will be submitted for faculty review.

By the fall term of the senior year honors students will have begun work in their final research projects. They will also enroll in a senior honors seminar, Psychology 498, in which research projects will be discussed. Thesis research will continue in the spring with enrollment in Psychology 499, Senior Honors Dissertation. Final honors standing is based on a written thesis and an oral defense of the thesis as well as on general academic performance.

Prospective applicants are advised to file applications early in the fall term of their junior year. Decisions on these applications will be made by the faculty at the end of the fall semester. It is possible for a student who has satisfactorily completed independent study or research to be admitted to the program at the end of the junior year. For consideration by the honors committee of the Department of Psychology, applicants must have a minimum cumulative grade average of at least a B+ in all courses in psychology.

Distribution Requirement

The distribution requirement in the social sciences is satisfied by any two courses in psychology with the exception of Psychology 123, 322, 324, 326, 350, 361, 422, 425, 471, 472, 473, 476, 491, and 693.

Romance Studies

See "Modern Languages, Literatures, and Linguistics," p. 100.

Russian Literature

See "Modern Languages, Literatures, and Linguistics," p. 100.

Sociology

D. P. Hayes, chairman; R. Alba, P. D. Allison, R. Avery, B. Bowser, S. Caldwell, B. Edmonston, G. Elder, R. K. Goldsen, J. B. Jacobs, J. A. Kahl, R. Kraut, W. W. Lambert, R. McGinnis, L. Meltzer, B. C. Rosen, J. M. Stycos, R. M. Williams, Jr.

Introductory Courses

There is no single introductory course in sociology. Sociology 101 will provide a traditional overview of sociology for those who desire it, but other alternative approaches to the field are offered in the 100- and 200-level courses. Any two courses at these levels will serve as adequate preparation for most advanced courses. These courses are open to all students and have no prerequisites unless otherwise specified.

The Major

Sociology can serve either as a broad, liberal-arts approach to the study of people in society, or as preprofessional training appropriate for graduate study in sociology itself or in such fields as law, business, public administration, planning, and social welfare. To help the student organize a specific program within this large range, the department offers a series of alternative concentrations (with change from one to another usually permitted), as described below.

The director of undergraduate studies will help the prospective major to choose among the concentrations and will designate a faculty adviser to each student who is accepted into the program. A helpful pamphlet is issued each semester listing all the courses in sociology on campus (including those in other departments), organized by major topics. It is available in the department office, 323 Uris Hall.

Concentration I — Human Society permits a broad study of society on a comparative basis, combining humanistic and scientific approaches. The concentration is not tightly structured and the student will develop a personal plan in consultation with an adviser.

Prerequisites: Any two courses in sociology at the 100 or 200 level with an average grade of B– or better.

Major Program: Thirty-two additional credits in sociology, of which 12 may be in related departments if acceptable to the adviser as part of a coherent plan of study. At least 8 credits must be in courses at the 400 level or above.

Concentration II — Research Training is for students who aim for careers in social science research or teaching. It prepares students for graduate work in social science and provides training leading directly to postbaccalaureate jobs in research organizations.

Prerequisites: Any two courses in sociology at the 100 or 200 level with an average grade of B– or better, and one year of college mathematics, especially calculus and probability statistics (such as Mathematics 107–108 or Mathematics 111–112).

Major Program: Students in this concentration must complete at least 44 additional credits of courses in sociology. These must include: (a) three courses in research methods, such as Sociology 321, 325, 424, 425; (b) two courses in sociological theory; (c) one semester of the honors sequence (Sociology 495) or a graduate seminar; and (d) at least two semesters of supervised research experience with faculty in sociology.

Concentration III — American Institutions and Public Policy

centers on the analysis of key institutions in American society and the trends and conflicts that underlie current public issues. Considerable attention is given to sociological studies by government, academic, and private agencies that influence public policy.

Prerequisites: Any two courses in sociology at the 100 or 200 level with an average grade of B– or better.

Major Program: An additional 34 credits, including (a) two courses in related fields chosen from Africana Studies 290, Economics 101, Government 111 or 302, History 312 or 341, or Industrial and Labor Relations 261; and (b) seven courses in sociology, including two courses in research methods such as Sociology 321 and 325, and two advanced courses chosen from Sociology 404, 441, 442, 462, or related graduate courses or seminars.

Concentration IV — Personality and Social Psychology

is offered in cooperation with the Department of Psychology. This concentration approaches personality and social psychology from a sociological perspective. To ensure a solid interdisciplinary grounding, students will be encouraged to develop some competence in psychology, cultural anthropology, and social institutions and processes.

Prerequisites: Two courses in sociology at the 100 or 200 level with an average grade of B– or better, including at least one from among Sociology 280, 281, 285, and 289.

Major Program: Thirty-two additional credits, including two courses in sociological methods (Sociology 321 and 325 or equivalents), three courses in personality and social psychology, and two courses in social institutions and processes. Courses in cultural anthropology and experimental psychology may be included within the major if approved by the adviser. At least two courses must be in courses at the 400 level or above.

Concentration V — Population Studies permits the intensive study of human populations from a social science perspective. Students are encouraged to combine population studies with a concentration in a related program such as women's studies, American studies, an area program, or biology and society.

Prerequisites: Sociology 230 plus one other course in sociology with an average grade of B– or better.

Major Program: An additional 36 credits in sociology, including (a) Sociology 431 and either 321 or 325; (b) Sociology 378 or 430; (c) two additional courses in population or closely related fields. Of the total requirement for the major, 12 credits may be in related fields if approved by the adviser.

The Honors Program is designed to offer the opportunity for original research under direct guidance of a member of the faculty. For admission to the honors program, students should file an application with the department during their junior year or at the beginning of their senior year. Honors candidates must have a cumulative average of at least 2.7 and an average of 3.0 in sociology courses. The level of honors is determined by the faculty on recommendation from the student's honors committee after presentation of the research essay.

Distribution Requirement

The distribution requirement in the social sciences may be satisfied by any two courses in sociology; students without background are advised to choose from those at the 100 or 200 level. These courses also may serve as prerequisites for or parts of the major in sociology. Freshman Seminars do not fulfill either requirement.

Freshman Seminars

Freshman Seminars will be offered in fall and spring semesters. Consult the Freshman Seminar booklet and the department course lists for seminar descriptions, instructors, and times.

Theatre Arts

R. C. Shank, chairman; P. Alexander, V. A. Becker, S. R. Cole, P. J. Curtis, J. Desmond, D. L. Fredericksen, I. J. Hauptman, M. Lawler, J. Morgenroth, B. O. States, A. Van Dyke, J. A. Zych

Opportunities for performance in theatre, dance and cinematography are available to the entire student body through the facilities of the department. Students may participate in the wide variety of theatrical performances presented each term in the University Theatre of Willard Straight Hall, the Drummond Studio in Lincoln Hall, and the Dance Studio in Helen Newman Hall as actors, dancers, directors, playwrights, designers, or technicians. Auditions for particular productions are scheduled throughout the year.

Majors

The department offers students majors in theatre arts and in dance.

Theatre Arts Major All students who wish to major in theatre arts must complete Theatre Arts 240 plus 30 additional credits in the department. The additional credits will include substantial course work in theatre history, literature, and theory and in any two of the following four areas: (1) technical production and design, (2) acting and directing, (3) dance, and (4) cinema. In addition, majors must complete at least 12 credits of related work outside the department.

Dance Major Students who wish to major in dance must have completed or proved competency in intermediate modern technique by the beginning of their junior year. Dance majors are required to take a minimum of one technique class each term. The courses required of all dance majors are: (1) Theatre Arts 301 (1 credit each semester for four semesters); (2) Theatre Arts 210–211; (3) Theatre Arts 314–315; and (4) Theatre Arts 316. In addition to the 23 credits listed above dance majors are required to take 20 credits in related fields to be chosen in consultation with their adviser.

Study Abroad The College of Arts and Sciences, through this department and in consort with fifteen other colleges and universities, offers up to a full year's study at the Centre Universitaire Américain du Cinéma à Paris. The center's program is theoretical, critical, and historical. It is most useful to students pursuing an independent major in film studies and serves as an intensive supplement to their Cornell film courses. Fluency in French is required and Theatre Arts 374, 375, and 376 are prerequisites. Inquiries should be addressed to Professor Fredericksen, Cornell's liaison with the center.

The Charles B. Moss Scholarship is administered by the department. The recipient is chosen from among those majors in the department who demonstrate exceptional ability.

Honors Candidates for the degree of Bachelor of Arts with honors in theatre arts must fulfill the requirements of the major and maintain an average of A– in departmental courses and an average of B in all courses. Any such student may, at the beginning of the second semester of the junior year, form a committee of three faculty members to guide and evaluate the honors work. The work will culminate in an honors thesis or practicum to be presented not later than April 1 of the senior year, and an examination to be held not later than May 1.

Distribution Requirement

The distribution requirement in the expressive arts may be satisfied by any two of the 3- or 4-credit courses at the 200 level or above in the Department of Theatre Arts.

Freshman Seminar Requirement

The Freshman Seminar requirement may be satisfied by Theatre Arts 120, 130, or 140. Interested students should consult the Freshman Seminar booklet for further information.

Theatre Laboratory

Theatre Arts 151 and 152 are offered either semester; Theatre Arts 155 is offered during fall term and 156 during the spring term. These courses may be repeated for credit. Acting, directing, and managerial and technical responsibilities in production of theatre and dance are under the supervision of the department staff. Students may also participate without earning credit.

Theatre Arts 151, 152, 155, and 156 may be added or dropped without penalty at any time during the semester.

Dance

Enrollment in all dance courses takes place at Helen Newman Hall. Courses in dance technique are offered each semester—modern: four levels, fundamentals through advanced; and ballet: elementary and intermediate. T'ai chi, a Chinese system of movement for health, self-defense, and meditation, is also offered. Freshmen and sophomores may satisfy the physical education requirement by taking any of these courses. Up to four units of credit may be earned (one each semester) for enrollment in intermediate or advanced technique only (see Theatre Arts 301). Schedules for technique classes are available in the Dance Office, Helen Newman Hall.

Students may receive credit for performance in student/faculty concerts. In addition, a repertory and performance workshop will be offered. Staff will choreograph and conduct rehearsals for performance of original dance works. Students must obtain permission of the instructor. Hours will be arranged through the Dance Office, Helen Newman Hall. One credit may be earned for this (see Theatre Arts 155–156, Rehearsal and Performance).

Special Programs and Interdisciplinary Studies

Africana Studies and Research Center

J. Turner, director; Y. ben-Jochannan, W. Cross, R. Harris, J. Higginson, C. Mbata, A. Nanji

The Africana Center has a unique and specialized program of study that offers an undergraduate degree through the College of Arts and Sciences and a graduate degree (Master of African and African-American Studies) through the University's Graduate School.

The purpose of the program is to prepare students for professional careers relevant to the learning and leadership needs of the African-American community. It envisions that the knowledge and methodology of various fields and disciplines will be brought to bear upon the history, present state, and dynamics of the black people and cultures in the Americas, Africa, and the Caribbean. The curriculum is designed to reflect a multidisciplinary approach to the experience of African peoples throughout the world. Africana Center courses are open to both majors and nonmajors.

The Africana Major The undergraduate major offers interdisciplinary study of the fundamental dimensions of the Afro-American and African experiences. Because of the comprehensive nature of the program, it is to the students' advantage to declare themselves Africana majors as early as possible. The following are prerequisites for admission to the major. Students should submit:

- 1) a statement of why they want to be an Africana studies major;
- 2) a tentative outline of the area of study they are considering (African or Afro-American) for the undergraduate concentration; and
- 3) a full transcript of courses taken and grades received.

The center's undergraduate faculty representative will review the applications and notify students within two weeks of the status of their request.

After acceptance as a major in the Africana Center, a student must maintain a C+ cumulative average in the center's courses while completing the major program. The Africana major must complete 36 credits in courses offered by the center, to include the following four core courses: AS&RC 231, 290, 360, 431. Beyond the core courses, the student must take 8 credits of center courses numbered 200 or above and 15 credits numbered 300 or above. Within this selection the student must take at least one of the following AS&RC courses: 203, 204, 283, or 301. The program of an undergraduate major may have a specifically Afro-American focus or a specifically African focus.

Joint Majors The center encourages joint majors in the College of Arts and Sciences and in other colleges. Joint majors are individualized programs that must be worked out between the departments concerned. The center's undergraduate faculty representative, Professor Harris, will assist students in the design and coordination of joint major programs. However, in any joint major program the center will require that at least 16 credits be taken in Africana studies courses, including AS&RC 290.

Double Majors In the case of double majors (as distinct from joint majors) students undertake to carry the full load of stipulated requirements for a major in each of the two departments they have selected.

The Honors Program offers students the opportunity to complete a library research thesis, a field project in conjunction with a report on the field experience, or a project or experiment designed by the student. The requirements for admission to the honors program for all students — regular majors, joint majors, and double majors — are a B— cumulative average in all courses and a B+ cumulative average in the center's courses. Each student accepted into the honors program will have an honors faculty committee, consisting of the student's adviser and one additional faculty member, which is responsible for final evaluation of the student's work. The honors committee must approve the thesis or project proposal before May 1 of the student's junior year. The completed thesis or project report should be filed with the student's faculty committee by May 10 of the senior year.

Distribution Requirement The following courses offered by the center satisfy distribution requirements in the categories as listed: in the social sciences, any two of AS&RC 171, 172, 231, 290, 301, 302, 344, 345, 346, 351, 352, 410, 420, 460, 484, 485, 495, 550; in history, any two of AS&RC 203, 204, 231, 283, 344, 360, 361, 370, 381, 460, 475, 483, or 490; in the humanities, any two of AS&RC 219, 422, 431, 432, 465, 492; in the expressive arts, any two of AS&RC 137, 138, 285, 303, 465.

Two Africana Studies and Research Center courses from the appropriate group may be used in fulfillment of one of the following distribution requirements: social sciences, history, humanities, or expressive arts. Students who are not Africana Studies and Research Center majors may petition to satisfy a second requirement with center courses if they are carrying a heavy program at the center.

Language Requirement Swahili fulfills the College of Arts and Sciences language requirement. Successful completion of AS&RC 131, 132, 133, and 134 provides qualification in Swahili. Successful completion of AS&RC 202 gives proficiency in Swahili. Africana majors are not required to take Swahili, but the center recommends the study of Swahili to complete the language requirement.

Ancient Mediterranean Studies

Study of the major ancient cultures of the Mediterranean involves a large number of disciplines in several departments at Cornell. The concentration in Ancient Mediterranean Studies aims at providing a coordinated program for students who do not elect to major in this area. (Relevant majors are offered by the Departments of Classics and Near Eastern Studies.) There are no prerequisites for the concentration, which is open to freshmen as well as upperclass students regardless of their majors. The concentration will serve one or both of two main purposes: (1) An introduction to the group of cultures that form the roots of modern Western culture. Mediterranean traditions of politics, religion, thought, literature, and art have continued and developed in new ways in the West since the end of antiquity. An understanding of those traditions as well as the issues and concerns from which they grew is valuable in itself and provides an illuminating perspective essential to understanding our own culture. (2) An introduction to the

liberal arts through the study of works of the highest quality in literature, art, history, philosophy, government, and science.

Courses are offered under four classifications: general courses, civilization (history, art, and archaeology), literature, and thought. General courses are intended to be introductory to all three areas of civilization, literature, and thought. To fulfill the requirements of the concentration the student must complete a minimum of five courses selected in consultation with an adviser in the concentration.

Types of Programs A student may wish to concentrate entirely in one of the three main areas (civilization, literature, or thought) or to elect a program which draws from two or all three of these areas, such as a study of the civilization, literature, and thought of one period – for example, Classical Greece (fifth and fourth centuries, B.C.). Many other coherent programs may be arranged by the student and adviser.

For further information and assistance in selecting an adviser see Dean Abel, 159 Goldwin Smith Hall.

Biology and Society

S. M. Brown, Jr., chairman; R. Boyd, B. Edmonston, T. Eisner, J. Fessenden-Raden, D. Greenwood, J. Haas, S. Levin, W. Provine, R. Root, H. Stinson, J. M. Stycos, B. Wallace, S. Zahler

The Biology and Society Major within the College of Arts and Sciences is a multidisciplinary program for students with special interests in such problems as food and population, energy, the environment, conservation of our natural resources, genetic engineering, and the right to medical care, as well as for students who plan postgraduate study in health and medicine, law, or other related fields.

Because the Biology and Society major is multidisciplinary, students must attain a basic understanding of each of the several disciplines it comprises, including introductory courses in the fields of chemistry, mathematics, genetics, ecology, and history. In addition, majors are required to take the two-semester course in Biology and Society, a set of electives, and a special senior seminar. Programs incorporating these required courses are designed in consultation with a special group of faculty advisers to accommodate each student's individual goals and interests. For further information on the major, including courses of related interest, specific course requirements, and application procedures, contact Professor S. M. Brown, Jr., Program on Science, Technology, and Society, 632 Clark Hall.

China-Japan Program

T. L. Mei, director; J. McCoy, associate director; M. G. Bernal, K. Biggerstaff, N. C. Bodman, K. Brazell, S. Cochran, B. deBary, D. R. DeGlopper, A. G. Grapard, E. M. Gunn, E. H. Jorden, D. P. Mazingo, T. J. Pempel, D. E. Perushek, C. A. Peterson, H. Shadick, R. J. Smith, M. W. Young

The China-Japan Program includes faculty members who have a commitment to teaching and research on China and Japan. The program is interdisciplinary and is organized to encourage and assist students in the study of the two great civilizations of East Asia. In addition to offering a substantial number of courses in the languages of China and Japan, program faculty members cover most of the major disciplines by means of courses given in several

departments of the college. The program is especially rich in courses that deal with the history, literature, society, culture, and art of East Asia. Undergraduates wishing to concentrate their studies on China or Japan may do so by declaring a major in the Department of Asian Studies and selecting an adviser from the faculty members listed above. Students interested in majoring in Asian studies with a focus on either China or Japan should consult the chairman of the Department of Asian Studies in 156 Rockefeller Hall. Graduate students interested in Chinese and Japanese studies should consult the *Announcement of the Graduate School*. For further information, contact the director or any staff member in the China-Japan Program Office, 140 Uris Hall.

Intensive English Program

E. J. Beukenkamp, director

This full-time, noncredit, nondegree program is designed to meet the requirements of foreign students who need to acquire proficiency in English in order to pursue university-level studies in the United States, as well as for visitors, businessmen, and others seeking competence in the language.

The intensive nature of the courses leads to a command of the language in all its aspects – listening, speaking, reading, and writing – in the shortest possible time.

Courses are offered both fall and spring semesters at three levels: beginning (TOEFL score below 370), intermediate (TOEFL score below 450), and advanced.

Students who have gained full admission to or who already are registered in degree granting programs at Cornell should consult *Cornell University: Description of Courses* for information regarding courses in English as a second language.

The Intensive English Program is administered by the Department of Modern Languages and Linguistics, Cornell University, Morrill Hall, Ithaca, New York 14853, U.S.A. Application materials and information are available directly from the program or by calling 607/256-4863.

Center for International Studies

The Center for International Studies supports and coordinates Cornell's programs of international and comparative studies. The center places particular emphasis on strengthening inquiry into issues that cut across disciplinary, professional, and regional concerns, and on providing a continuing source of innovation and experimentation in international studies. Further information about the center and its associated programs may be obtained from the Center for International Studies, Cornell University, 170 Uris Hall.

Program of Jewish Studies

J. Cohen, coordinator (Jewish history, church and the Jews, rabbinics); M. F. Collins (Bible, Dead Sea Scrolls, apocryphal and rabbinic literature); W. J. Dannhauser (Jews and Germans, contemporary Jewish thought, Gershom Scholem), S. L. Gilman (Yiddish literature, German-Jewish history and literature), A. G. Korman (Holocaust studies, Jewish labor movements), A. S. Lieberman (physical geography and natural history of Israel), D. I. Owen (Near Eastern and ancient Jewish history and archaeology), E. Rosenberg (Jews in modern European and Anglo-American literature), M. A. Zober (community development and social policies in Israel)

The Program of Jewish Studies is included in the framework of the Department of Near Eastern Studies. The program has grown out of the conviction that Judaic civilization merits its own comprehensive and thorough treatment and that proper understanding of any culture is inconceivable without adequate knowledge of the language, literature, and history of the people that created it. Accordingly, the offerings in the area of Hebrew language and literature have been considerably expanded and courses in ancient, medieval, and modern Jewish history have been added to the program.

Although further expansion of the program is anticipated, it presently enables students to obtain basic instruction and specialization in the fields of Semitic languages, the Hebrew Bible, the Apocryphal and Tannaitic literatures, medieval Hebrew literature, modern Jewish thought, modern Hebrew literature, and ancient, medieval, and modern Jewish history. In some of these fields students may take courses both on graduate and undergraduate levels. Faculty in other departments provide additional breadth to the program by offering courses in related areas of study.

Latin American Studies

D. K. Freebairn, director; S. Barraclough, L. Crowder, T. Davis, B. Edmonston, R. Goldsen, W. Goldsmith, C. Greenhouse, J. Haas, D. Hazen, J. Henderson, T. Holloway, B. J. Isbell, D. Jones, J. Kahl, E. Kenworthy, L. King, T. Lynch, R. McDowell, C. Morris, J. Murra, T. Poleman, W. Rogers, B. Rosen, D. Sanjur, E. M. Santí, D. Solá, J. M. Stycos, M. Suñer, H. D. Thurston, A. Van Wambeke, W. Whyte, L. Williams, F. Young

The Latin American Studies Program encourages and coordinates faculty and student interests in Latin America. A variety of special lectures, films, and seminars supplement the regular course offerings. Undergraduate students may arrange a Latin American concentration or an independent major in Latin American studies, and graduate students may pursue a minor in Latin American studies while majoring in the graduate field of their choice. The College of Arts and Sciences offers Latin American studies courses in anthropology, economics, government, history, and sociology. In addition, there is a varied language, literature, and linguistics curriculum in Spanish, Portuguese, and Quechua. The student may also pursue Latin American studies in the College of Agriculture and Life Sciences; the College of Architecture, Art, and Planning; the College of Human Ecology; and the School of Industrial and Labor Relations.

Law and Society

The existence at Cornell of a wide variety of courses concerning the law as a social and historical phenomenon makes it possible for students to study law and society as a minor field. Students who wish to graduate with a concentration in law and society should consult one of the advisers listed below to work out a coherent program of study including at least four courses from among those approved for this purpose.

The law and society advisers for 1979-80 are: C. Carmichael (comparative literature), E. Eisenach (government), C. Greenhouse (anthropology), C. Holmes (history), J. B. Jacobs (sociology), D. B. Lyons (philosophy), D. T. Regan (psychology).

Center for Applied Mathematics

The Center for Applied Mathematics administers a broadly based interdepartmental graduate program that provides opportunities for study and research over a wide range of the mathematical sciences. This program is based on a solid foundation in analysis, algebra, and methods of applied mathematics. The remainder of the graduate student's program is designed by the student and his or her Special Committee. For more detailed information on opportunities for graduate study in applied mathematics contact the director of the Center for Applied Mathematics.

There is no special undergraduate degree program in applied mathematics. Undergraduate students interested in an application-oriented program in mathematics may select either the Option I or Option II major in mathematics or a suitably oriented program in some department of the College of Engineering.

Medieval Studies

J. O'Donnell, director; B. B. Adams, F. M. Ahl, A. J. Berger, V. T. Bjarnar, R. G. Calkins, J. Cohen, A. M. Colby-Hall, R. T. Farrell, C. Gilbert, A. Groos, T. D. Hill, J. J. John, R. E. Kaske, N. Kretzmann, G. Mazzotta, G. M. Messing, C. Morón-Arroyo, J. M. Najemy, D. M. Randel, B. Tierney, F. van Coetsem, W. Wetherbee III

Undergraduates interested in medieval studies have an opportunity to take courses in the following areas of instruction: medieval Hebrew, Arabic, and Latin; Old English, Middle English, and medieval Irish and Welsh; Old Provençal and medieval French; medieval Spanish and Italian; Old Saxon, Old High German, Middle High German, Gothic, Old Norse (Old Icelandic), and Old Russian; comparative literature, medieval art and architecture, medieval history, Latin paleography, medieval philosophy, musicology, comparative Slavic linguistics, comparative Romance linguistics, and comparative Germanic linguistics.

Undergraduates who wish to undertake an independent major or a concentration in medieval studies should consult the director of the program, Professor O'Donnell, 27 Goldwin Smith Hall.

Information for prospective graduate students is contained in the *Announcement of the Graduate School* and in a brochure on medieval studies, which can be obtained from the director.

Religious Studies

A. W. Wood, chairman; C. M. Arroyo, R. Baer, J. Bishop, J. Boon, R. Calkins, C. Carmichael, K. Clinton, M. Colacurcio, T. Frank, A. Grapard, J. John, T. Kirsch, N. Kretzmann, S. O'Connor, J. O'Donnell, D. Owen, D. Randel, M. Schub, C. Strout, B. Tierney

Religious studies is an interdisciplinary program reflecting a wide variety of academic interests and disciplines. The intention of the program is to provide a formal structure for the study of the religions of mankind at the undergraduate level. A student may fulfill the requirement for a concentration in religious studies by completing a minimum of four courses that have been approved by an adviser in the area of concentration. The program is administered by a committee; the chairman is Professor Wood, 327 Goldwin Smith Hall.

Courses in religious studies are offered in the Departments of Anthropology, Archaeology, Asian Studies, Classics, Comparative Literature, English, History, History of Art, Natural Resources, Near Eastern Studies, Philosophy, and Romance Studies.

Russian and Soviet Studies Major

W. M. Pintner (history), chairman; P. Carden, G. Gibian, S. S. Lottridge, V. Ripp, and S. Senderovich (Russian literature); L. H. Babby, E. W. Browne III, R. L. Leed, and A. Nakhimovsky (Slavic linguistics); M. G. Clark, W. Galenson, and G. J. Staller (economics); M. Rush (government); U. Bronfenbrenner (psychology)

The major in Russian and Soviet studies has the following requirements:

- 1) Qualification in Russian.
- 2) At least one course relating to Russia, at the 200 level or above, in each of the following departments: government, economics, history, and Russian literature. (A course in another department may be substituted for one of the above with the consent of the major adviser.)
- 3) At least three additional courses, at the 300 level or above, in one of the following departments: government, history, economics, or Russian literature. These courses shall be selected in consultation with the student's adviser and shall be approved as appropriate for a major in Russian and Soviet studies.

Each student majoring in Russian and Soviet studies will be assigned a major adviser in the department of his or her special interest who is also a specialist on Russia. Interested students should contact Professor Pintner, 431 McGraw Hall.

Program on Science, Technology, and Society

The Program on Science, Technology, and Society (STS) is an interdisciplinary unit which engages in teaching and research involving the interactions of science and technology with social and political institutions. In collaboration with other University departments and centers, the STS Program participates in the development of interdisciplinary courses at both the graduate and undergraduate level. These courses are designed to synthesize the perspectives of several academic disciplines in the analysis of relationships between science and technology on one hand, and today's society on the other. Current course and research topics include science, technology, and public policy; biology and society; technology assessment; arms control and national defense policies; energy policy; environmental policy and ethics; biomedical ethics; and citizen participation in technical decision making. The program draws its students, faculty, and research staff from the various divisions of the University.

Developed initially by STS, the undergraduate curriculum in biology and society is a major in the College of Arts and Sciences; it is also offered as an optional curriculum for undergraduates entering the General Studies Program of the New York State College of Agriculture and Life Sciences.

While the STS Program does not offer its own graduate degrees, a minor concentration in "Science and Technology Policy" is available within the graduate minor Field of Public Policy. Studies in peace science can be

pursued as a major concentration within the Field of Economics. Further information about either of these graduate programs may be obtained by contacting the field representative for either public policy or economics, listed in the *Announcement of the Graduate School*.

STS courses are cosponsored by the University academic departments. The titles and numbers of these courses are listed in *Cornell University: Description of Courses*; for course content and other details, refer to the listings of the particular cosponsoring department. Further information concerning the program, including a list of STS-related courses offered throughout the University and information concerning individualized courses of study, may be obtained from the program office, 632 Clark Hall (telephone 256-3810).

Social Relations Major

The major in social relations is offered jointly by the Department of Anthropology and the Department of Sociology. It provides the student with basic competence in cultural anthropology, social psychology, and sociology, and gives particular emphasis to the common methods of research in these disciplines. The student is expected to obtain a grasp of the common interests and unique insights of the three disciplines, and in the senior Social Relations Seminar is expected to integrate aspects of their theory and data.

Students seeking admission to the program should apply to the Social Relations Committee, 323 Uris Hall. Candidates should have completed the following prerequisites: (a) either a course in sociology or Anthropology 201; (b) either Psychology 101 or 128 or Sociology 280; and (c) either Sociology 325 or industrial and Labor Relations 210 or an equivalent course.

The Major calls for a minimum of 35 credits of course work as follows: (a) three pairs or other combinations of related courses at the 300 level or above, to be selected in consultation with the major adviser (these six courses must include two courses from each of the following disciplines: anthropology, social psychology, sociology); (b) at least one course in methods, to be selected from the following: anthropological methods, techniques of experimentation (psychology), methods in sociology, advanced psychological statistics, philosophy of science or of social science, or advanced statistics (such as Industrial and Labor Relations 311); (c) at least one course in theory related to social relations; and (d) the senior seminar in social relations (Sociology 497 or Anthropology 495). A list of the courses that may be used to satisfy the requirements for a major in social relations is available from any of the major advisers.

Society for the Humanities (A. D. White Center for the Humanities)

Michael Kammen, director. Fellows for 1979-80: Hermann Danuser (Pädagogische Hochschule Berlin), Charles Gibson (University of Michigan), Davydd Greenwood (Cornell University), Dominick LaCapra (Cornell University), Sir Edmund Leach (Cambridge University), Michael MacDonald (University of Wisconsin - Madison), Craig Reynolds (University of Sydney), Michael Ryan (University of Southern California), Michael Sprinker (Oregon State University), R. H. Stephenson (University of Glasgow), and Linda Waugh (Cornell University)

The society awards annual fellowships for research in the humanities in three categories: senior fellowships, faculty fellowships, and junior postdoctoral fellowships. The fellows offer, in line with their research, informal seminars intended to be exploratory or interdisciplinary.

Unlike other courses, the seminars offered by the society begin the *second* week of each semester. These seminars are open to graduate students and suitably qualified undergraduates. Students wishing to attend should telephone the center (256-4725) early in the first week of the term to arrange a short interview with the fellow offering the course. There are no examinations, and it is at the discretion of the fellow whether to require only oral reports, or, in addition, a research paper. Students wishing credit for the course should formally register in their own college. Persons other than those officially enrolled may attend as visitors with permission of the fellow.

All seminars are held in the A. D. White Center for the Humanities, 27 East Avenue.

The Frederick George Marcham Scholar Program Each year the Frederick George Marcham Scholar Program supports a special seminar program. For information contact M. Kammen, A. D. White Center for the Humanities.

South Asia Program

The South Asia Program exists to encourage and correlate teaching and research in South Asian studies dealing with Bangladesh, India, Nepal, Pakistan, and Sri Lanka (Ceylon). The program faculty includes members from a number of disciplines. Undergraduates with a special interest in South Asia may major in Asian studies with a concentration in South Asia. Languages regularly offered are Hindi, Sinhalese, Tamil, Telugu, and Urdu. Cornell is a charter member of the American Institute of Indian Studies, and undergraduates, as well as graduate students, are eligible for AIIS three-month summer or nine-month intensive language programs in India. For courses available in South Asia and details on the major, see the "Department of Asian Studies" listing earlier in this volume. Students wishing further information should see the director, South Asia Program, 130 Uris Hall.

Southeast Asia Program

Students interested in Southeast Asian studies should consult the program description under "Department of Asian Studies" earlier in this announcement.

Women's Studies Program

S. Bem, director; E. Adkins, K. Brazell, J. Egner, J. Farley, N. Furman, J. Gerner, M. Katzenstein, S. McConnell-Ginet, F. Miller, B. Richardson, L. Waugh

Women's studies, a University program in the College of Arts and Sciences, has three goals: to encourage the development of teaching about women for women and men; to examine assumptions about women in various disciplines and to develop, systematize, and integrate back into the disciplines new knowledge about women; and to cooperate in public service activities with the extension divisions of the University. Each term the program offers undergraduate and graduate courses, both independently and in cooperation with other departments. Students in the College of Arts and Sciences wishing to major in women's studies can design their own major through the Independent Major Program.

Any graduate student in the University may elect a women's studies minor. The program typically sponsors a biweekly noncredit seminar for graduate students and faculty to facilitate sharing of knowledge across disciplinary lines.

The program is guided by a board composed of professors from several of the divisions at Cornell, Women's Studies Program lecturers, and elected representatives of the undergraduate and graduate students. The program serves as a clearinghouse for information about women's organizations on campus. Each Friday noon during the academic year informal presentations, open to the public, are sponsored about current research or a social issue affecting women.

Distribution Requirement Any two of the following women's studies courses may be used to satisfy the distribution requirement in the social sciences: 101, 244, 277, 321, 353, 366, 422, 466, 685, 697. The distribution requirement in history may be satisfied by any two of these women's studies courses: 326, 426, 626, 627. Courses which may be used to fulfill the distribution requirement in the humanities include any two of the following: 248, 363, 479. Additional courses will be offered which will also satisfy either the social sciences, history, or Freshman Seminar requirements. Contact the Women's Studies Program, 431 White Hall (telephone 256-6480), for updated information.

Division of Biological Sciences

The Division of Biological Sciences is organized to provide a unified curriculum for undergraduate majors enrolled in either the College of Agriculture and Life Sciences or the College of Arts and Sciences. Courses in biological sciences are also an integral part of many disciplines today and a basic requirement for areas of study in many schools and colleges of Cornell.

A brochure describing the biological sciences major in more detail is available from the admissions offices of the College of Agriculture and Life Sciences and the College of Arts and Sciences.

Graduate study in the biological sciences is administered by more than a dozen specialized fields within the Graduate School. More detailed information about graduate study is contained in the *Announcement of the Graduate School*.

Facilities

The Division of Biological Sciences is composed of five major sections: Biochemistry, Molecular and Cell Biology; Botany, Genetics and Development; Ecology and Systematics; Neurobiology and Behavior; and Physiology; and two smaller units, the L. H. Bailey Hortorium and the Shoals Marine Laboratory.

The offices, research laboratories, and teaching rooms of biology faculty members are located in many different buildings both on and off the campus, but most are in the Colleges of Agriculture and Life Sciences, Arts and Sciences, and Veterinary Medicine.

With laboratories and faculty offices spread over such a large area, the need to centralize the services and resources for biology students led to the establishment of the Behrman Biology Center in Stimson Hall. The "Bio Center" is the division's primary academic advising and counseling facility. Services and resources include academic program planning, tutoring, detailed course information, lecture tapes, and special readings. The informal atmosphere is suitable for studying or relaxing.

The Shoals Marine Laboratory, a cooperative venture with the University of New Hampshire, is located on a small island in the Gulf of Maine. Its base office in Stimson Hall provides advising and career resources for students interested in the marine sciences and administers the SEA Semester Program for Cornell students pursuing studies at Woods Hole or aboard the schooner *Westward*.

Faculty

R. Barker, director; S. A. Zahler, associate director for academic affairs; E. K. Adkins, K. Adler, M. Alexander, J. P. Barlow, D. M. Bates, A. Bensadoun, K. W. Beyenbach, A. W. Blackler, S. E. Bloom, E. B. Brothers, W. L. Brown, P. J. Bruns, P. F. Brussard, W. R. Butler, T. J. Cade, J. M. Calvo, J. M. Camhi, N. A. Campbell, R. B. Campenot, R. R. Capranica, B. F. Chabot, R. S. Chaleff, J. L. Cisne, R. K. Clayton, P. J. Davies, E. A. Delwiche, W. C. Dilger, W. L. Dills, W. J. Dress, S. J. Edelstein, T. Eisner, S. T. Emlen, H. E. Evans, H. L. Everett, P. P. Feeny, G. W. Feigenson, J. M. Fessenden-Raden, G. R. Fink, R. H. Foote, E. L. Gasteiger, J. Gibson, Q. H. Gibson, J. H. Gillespie, C. A. S. Hall, B. P. Halpern, G. G. Hammes, W. Hansel, G. Hausfater, L. A. Heppel, G. P. Hess, P. C. Hinkle, K. A. Houpt, T. R. Houpt, H. C. Howland, R. R. Hoy, J. W. Ingram, A. T. Jagendorf, M. N. Kazarinoff, W. T. Keeton, E. B. Keller, K. A. R. Kennedy, J. M. Kingsbury, F. W. Lengemann, S. A. Levin, G. E. Likens, J. T. Lis, E. R. Loew, R. E. McCarty, R. E. MacDonald, W. N. McFarland, R. J. MacIntyre, J. T. Madison, P. L. Marks, K. Moffat, H. E. Moore, K. J. Niklas, J. D. Novak, D. J. Paolillo, P. J. Parker, M. V. Parthasarathy, D. Pimentel, T. R. Podleski, F. H. Pough, W. B. Provine, E. Racker, M. E. Richmond, S. J. Risch, J. W. Roberts, R. B. Root, M. M. Salpeter, R. M. Spanswick, A. M. Srb, H. T. Stinson, A. A. Szalay, D. N. Tapper, J. F. Thompson, B. K. Tye, C. H. Uhl, V. Utermohlen, P. J. VanDemark, A. van Tienhoven, V. M. Vogt, B. Wallace, R. H. Wasserman, M. D. Whalen, J. H. Whitlock, R. H. Whittaker, D. B. Wilson, W. A. Wimsatt, R. J. Wu, D. B. Zilversmit

Other Teaching Personnel

R. R. Alexander, S. Bobowski, R. A. Calvo, P. S. Camp, R. A. Corradino, R. M. Crump, C. Eberhard, P. R. Ecklund, M. Ferger, J. C. Glase, B. Goodman, J. M. Griffiths, J. B. Heiser, B. R. Land, T. J. McDonald, C. Reiss, M. L. Wilkinson, N. B. Wurster, H. H. Zakon

Distribution Requirement

In the College of Agriculture and Life Sciences, the biological sciences distribution requirement is for a minimum of 9 credits, including at least 6 credits of introductory biology selected from either Biological Sciences 109–110, or 105–106, or 101–102 and 103–104, or 101–102 and 103–208. Advanced placement in biology with a score of 4 or 5 (6 or 8 credits, respectively) will satisfy the requirement for introductory biology. The additional credits may be satisfied by any biological sciences courses except Biological Sciences 108, 201, 202, 205, 206, 301, or 302; or by certain other non-biological sciences courses specified by the college.

In the College of Arts and Sciences, the biological sciences distribution requirement is for at least 6 credits of introductory biology selected from either Biological Sciences 109–110, or 105–106, or 101–102 and 103–104, or 101–102 and 103–208. Advanced placement in biology with a score of 4 or 5 (6 or 8 credits, respectively) also satisfies the distribution requirement in the biological sciences.

In the College of Human Ecology, the natural sciences distribution requirement is for at least 6 credits selected from Biological Sciences 109–110, 101–103, 102–104 or 102–208, 105–106, or any courses in chemistry or physics. Advanced placement in biology with a score of 4 or 5 (6 or 8 credits, respectively) also satisfies the distribution requirement in the natural sciences.

The Major

The Division of Biological Sciences offers a major in biological sciences to students enrolled in either the College of Agriculture and Life Sciences or the College of Arts and Sciences. Before course registration for the junior year, all students wishing to be admitted to the major should schedule an appointment with the associate director for academic affairs in 118 Stimson Hall. Freshmen and sophomores in the process of completing the required prerequisites may be admitted to the major on a provisional basis. Since modern biology has an increasing physical and quantitative orientation, students are advised to undertake basic science courses that stress this orientation; these courses are signified by the word "recommended" in the listing of requirements below. A 2.75 Cornell cumulative grade point average is required for final admission to the major except for those students admitted directly to the major as freshmen (Agriculture and Life Sciences students only) or as transfers. In addition satisfactory performance is required in the completion of the following:

- 1) One year of introductory biology for majors (Biological Sciences 101–102 and 103–104, or 101–102 and 103–208, or 105–106). Students may choose to accept advanced placement if they have received a score of 5 on the Advanced Placement Examination of the College Entrance Examination Board. Students with a score of 4

must fulfill the introductory biology requirement by taking Biological Sciences 103–104 or 103–208, or 4 credits of work in Biological Sciences 105–106 selected with the advice and approval of the instructors. Freshmen who have not taken the CEEB examination may register for an advanced standing examination in biology which is administered during orientation week.

- 2) One year of general chemistry: Chemistry 207–208 (recommended), or 215–216 (recommended), or 103–104.
- 3) One year of college mathematics, including at least one semester of calculus: Mathematics 111–112 (recommended), or 113–112 (recommended), or 105–106.
- 4) One semester of organic chemistry lectures: Chemistry 253, or 357, or 359.

Whenever possible, students should include the first three subjects in their freshman schedule and complete the organic chemistry lecture course (see below) in their sophomore year. A student is not encouraged to undertake a major in biological sciences unless performance in the above four subjects gives evidence of capacity to do superior work at a more advanced level.

In addition to the introductory courses in biology, chemistry, and mathematics, each student majoring in biological sciences must complete the following:

- 1) Organic Chemistry: Chemistry 253 and 251, or 253 and 301, or 357–358 and 251, or 357–358 and 301 or 359–360 and 251, or 359–360 and 301.
- 2) Physics: Physics 207–208 (recommended), or 112–213–214 (recommended), or 101–102.
- 3) Genetics: Biological Sciences 281.
- 4) Biochemistry: Biological Sciences 330 or 331.
- 5) One of the concentration areas outlined below.
- 6) The breadth requirement outlined below.
- 7) As an alternative to 5 and 6 above, the Program in General Biology.
- 8) Qualification in a foreign language. Students may satisfy this requirement by (a) having studied a foreign language for three or more years in high school, or (b) attaining a score of 560 or more on the reading portion of the College Entrance Examination Board (CEEB) achievement test, or (c) successfully completing 6 college credits in a foreign language.

Concentration Areas and Requirements

Students accepted into the biological sciences major must choose a concentration area or the Program in General Biology. The concentration requirements are designed to help students achieve depth in one area of biology while ensuring that the selection of advanced courses will form a coherent and meaningful unit. Due to the flexibility allowed in satisfying these requirements, students should consult their faculty advisers. No more than 4 credits of research courses may be used in completion of the requirements in the area of concentration. Special programs for students interested in biophysics, microbiology, or nutrition are available to students who qualify for them. The possible concentration areas are:

- 1) *Animal Physiology and Anatomy*: Bio S 274, The Vertebrates; an introductory animal physiology course (Biological Sciences 311 and 319 or 416 and 418); and at least 4 additional credits selected from the following courses: Bio S 310, Invertebrate Zoology; Bio S 313, Histology: The Biology of the Tissues; Bio S 315 and 317, Ecological Animal Physiology; Bio S 389, Vertebrate Developmental Anatomy; Bio S 414, Vertebrate Morphology; Bio S 432, Survey of Cell Biology; Bio S 654–655–656, Mammalian Physiology, with special permission; An Sc 427, Fundamentals of Endocrinology. Students electing to take one of the 3-credit courses (Biological Sciences 315, 389, 414, 432, 654, 655, or 656) may complete the four credits by taking Bio S 410, Seminar in Anatomy and Physiology.
- 2) *Neurobiology and Behavior*: The introductory course in Neurobiology and Behavior (Biological Sciences 321), and 12 additional credits, including a second course from the neurobiology and behavior offerings. The remainder of the 12 credits may be in any course (such as physiology, developmental biology, cellular biology, ecology, or vertebrate or invertebrate biology) approved by the adviser as appropriate preparation for work or advanced study in neurobiology and behavior or in related subjects.
- 3) *Biochemistry*: Chemistry 300 or 215–216, Quantitative Chemistry, must be taken. One of the following organic chemistry laboratory sequences must also be taken: Chemistry 301–302, or 251–252–302, or 301, or 251–252. In addition, the student must take a physical chemistry sequence (Chemistry 389–390 or 287–288) and a biochemistry laboratory course (Biological Sciences 638 or 430 or 434). It is recommended that students take the more rigorous organic chemistry and physics sequences (Chemistry 357–358 or 359–360 and Physics 207–208), and a third semester of calculus.
- 4) *Botany*: Five courses (including a plant physiology laboratory course) fulfill the concentration requirement, as follows: (a) Bio S 242 and 244 or 341 and 349, Plant Physiology; (b) Bio S 346, Taxonomy of Vascular Plants; (c) either Bio S 345, Plant Anatomy, or Bio S 347, Cytology; and (d) either Bio S 241, Plant Biology; Bio S 348, Phycology; Bio S 444, Comparative and Developmental Morphology of the Embryophyta; Bio S 463 and 465, Plant Ecology; or PI Pa 309, Introductory Mycology. Students are encouraged to take Bio S 449, Undergraduate Research in Botany. A student may elect to complete the required five courses by taking both courses in group (c) rather than taking any in group (d).
- 5) *Ecology, Systematics, and Evolution*: Bio S 360, General Ecology; Bio S 477, Organic Evolution; a plant or animal physiology course; and at least one 400-level course with accompanying laboratory from within the concentration offerings. In addition to the latter course, students in this area must select at least two laboratory courses above and beyond those required of all biology majors (i.e., introductory biology, genetics, and organic chemistry). These two laboratory courses may include the physiology course, and/or courses counted toward fulfillment of the breadth requirement. It is strongly recommended that students planning graduate study take a course in statistics (I&LR 210 or 311).

- 6) *Genetics and Development*: Nine credits, usually selected from the following courses: Bio S 282, Human Genetics; Bio S 347, Cytology; Bio S 385, Developmental Biology; Bio S 389, Vertebrate Developmental Anatomy; Bio S 446, Cytogenetics; Bio S 477, Organic Evolution; Bio S 481, Population Genetics; Bio S 482, Plant Cell Genetics; Bio S 483, Molecular Aspects of Development; Bio S 484, Molecular Evolution; Bio S 485 and 487, Microbial Genetics; Bio S 488, Genetics of Lower Eucaryotes; Bio S 489, Undergraduate Research in Genetics and Development; Bio S 644, Plant Growth and Development; An Sc 419, Animal Cytogenetics; Pl Br 605, Physiological Genetics of Crop Plants.

- 7) *Cell Biology*: Chemistry 300 or 215–216, Quantitative Chemistry; a laboratory (Biological Sciences 434 or 430); and one of the following two options:

Option 1: Bio S 432, Survey of Cell Biology, and 8 additional credits selected from groups A and B.

Option 2: Two courses selected from Group A and 6 additional credits selected from Groups A and B.

Group A: Bio S 433, Cell Structure and Physiology; Bio S 438, Cell Proliferation and Oncogenic Viruses; Bio S 483, Molecular Aspects of Development.

Group B: Bio S 305, Basic Immunology, Lectures; Bio S 307, Basic Immunology, Laboratory; Bio S 313, Histology: The Biology of the Tissues; Bio S 345, Plant Anatomy; Bio S 347, Cytology; Bio S 482, Plant Cell Genetics; Bio S 485, Microbial Genetics, Lectures; Bio S 488, Genetics of Lower Eucaryotes; Bio S 496, Cellular Neurobiology; An Sc 419, Animal Cytogenetics; Micro 290, General Microbiology Lectures; Micro 291, General Microbiology Laboratory.

Students anticipating graduate work in cell biology should consider taking a physical chemistry sequence (Chemistry 389–390 or 287–288).

- 8) *Independent Option*: Students who, for good reason, wish to undertake a course of study not covered by the seven existing concentration areas or the Program in General Biology may petition the Division of Biological Sciences Curriculum Committee.

Breadth Requirement

To fulfill the breadth requirement in the biological sciences major, students must pass a total of two courses outside of their concentration area selected from two of the categories listed below. Faculty advisers should be consulted when choosing the courses to meet this requirement.

- 1) *Animal Physiology and Anatomy*: Biological Sciences 274, 310, 311, 313, 315, 318, 389, 416.
- 2) *Botany*: Biological Sciences 242 and 244, 341 and 349, 345, 346, 348; Plant Pathology 309.
- 3) *Cellular and Developmental Biology*: Biological Sciences 305, 347, 385, 432, 483; Microbiology 290.
- 4) *Ecology, Systematics, and Evolution*: Biological Sciences 260, 360, 364, 471*, 472*, 475*, 476*, 477; Entomology 212.
- 5) *Neurobiology and Behavior*: Biological Sciences 321.

*May not be used as a breadth course if Biological Sciences 274 is counted as a breadth course.

Program in General Biology

Students choosing the general biology option must fulfill all the general requirements for the biology major (chemistry, genetics, biochemistry, etc.) *except* one of the concentration areas and the breadth requirement. The specific requirements for the program are:

- 1) General Ecology (Biological Sciences 360).
- 2) Neurobiology and Behavior (Biological Sciences 321).
- 3) A physiology course from the following: Bio S 242 and 244 or 341 and 349, Plant Physiology; Bio S 311, Introductory Animal Physiology, Lectures; Bio S 315, Ecological Animal Physiology, Lectures; Bio S 416, General Animal Physiology: A Quantitative Approach, Lectures.
- 4) One course from the following: Bio S 241, Plant Biology; Bio S 274, The Vertebrates; Bio S 310, Invertebrate Zoology; Bio S 346, Taxonomy of Vascular Plants; Bio S 348, Phycology; Entom 212, Insect Biology; Micro 290 and 291, General Microbiology.
- 5) At least one course concentrating on plants. This may be satisfied by a course that also fulfills requirement 3 or 4.
- 6) At least one course with a laboratory. This may be satisfied by a course that also fulfills requirement 3 or 4 or 5.
- 7) A biological sciences course offered for 2 or more credits having as a prerequisite one of the following: Bio S 242 or 341, Plant Physiology; Bio S 241, Plant Biology; Bio S 274, The Vertebrates; Bio S 281, Genetics; Bio S 311, Introductory Animal Physiology, Lectures; Bio S 315, Ecological Animal Physiology, Lectures; Bio S 321, Neurobiology and Behavior; Bio S 330 or 331, Principles of Biochemistry; Bio S 360, General Ecology; Bio S 416, General Animal Physiology: A Quantitative Approach, Lectures.

Independent Research and Honors Program

Individual Research Projects under the direction of a faculty member are encouraged as part of the program of study within a concentration. Applicants for research projects are accepted by the individual faculty members, who take into account students' previous academic accomplishments, interests, and goals, and the availability of space and equipment suitable for the proposed project. Students accepted for independent research will enroll for credit in a research course with the written permission of the faculty supervisor. No more than 4 credits of research courses may be used in completion of the requirements in the area of concentration.

The Honors Program in biological sciences is designed to offer advanced training in laboratory or field research through the performance of an original research project under the direct guidance of a member of the faculty. Applications for the honors program are available in the Office for Academic Affairs, 118 Stimson Hall, and must be submitted to the Honors Program Committee by the first week of classes of the senior year. To qualify for the program, students enrolled in the College of Agriculture and Life Sciences must have at least a 3.0 cumulative

grade average; those in the College of Arts and Sciences must have at least a 2.7 cumulative grade average. All students must have at least a 3.0 cumulative grade average in biology, chemistry, and mathematics, and should have completed at least 30 credits at Cornell. In addition, candidates must have a faculty member to supervise their research. Any faculty member in the Division of Biological Sciences may act as a supervisor. Faculty supervisors outside the division are acceptable only if a faculty member of the division agrees to take full responsibility for the quality of the work. In rare cases, research done elsewhere may be presented for honors; providing that *prior approval* of the Honors Program Committee has been given. An honors candidate usually enrolls for credit in a research course under the direction of the faculty member acting as honors supervisor. Participation in an honors research seminar is expected.

Recommendation to the faculty that a candidate graduate with honors will be the responsibility of the Honors Program Committee. Students interested in the honors program should consult their faculty adviser early during their junior year. Students are encouraged to begin their research projects in the junior year. Details pertaining to thesis due dates, seminars, and other requirements may be obtained from the chairperson of the Honors Program Committee. Information on faculty research activities is available in the Behrman Biology Center, G20 Stimson Hall.

Curriculum Committee

Many decisions pertaining to the curriculum, to division-wide requirements, and to concentration and breadth areas are made by the Curriculum Committee of the division. The committee has faculty and elected student members, and welcomes advice and suggestions from all interested persons.

Advising

Students in need of academic advising or counseling are encouraged to consult their advisers, come to the Behrman Biology Center, G20 Stimson Hall, or contact the associate director for academic affairs, 118 Stimson Hall.

Students interested in marine biology should visit the Marine Biology Office, G14 Stimson Hall.

Graduate School of Business and Public Administration

Administration

David A. Thomas, Associate Dean

Edward T. Lewis, Associate Dean for External Affairs

Thomas J. Calo, Director of Placement

Jan K. Orloff, Director of Administration, Public Administration Program

James W. Schmotter, Director of Admissions and Student Affairs

Karen A. Tosi, Assistant Director of Placement—Sloan Program and Assistant to the Dean

Malka Weinstein, Registrar and Assistant Director of Admissions and Student Affairs

The Graduate School of Business and Public Administration prepares men and women for managerial careers in private business, public service, and health care. The school offers course work in many disciplines to provide potential business, public, and health managers with an understanding of the complexities of the professional world in which they will operate and of the organizations of which they will become a part.

In most cases, a bachelor's degree or its equivalent is required for admission to the two-year program leading to the Master of Business Administration [M.B.A.], Master of Professional Studies (Hospital and Health Services Administration) [M.P.S. (H.H.S.A.)], or Master of Public Administration [M.P.A.] degree. Over half of the students have a background of undergraduate studies in arts and sciences and about one-quarter in engineering. One-half of the students begin their graduate training immediately after receiving their bachelor's degrees and the remaining half following military or work experience.

Combined degree programs allow highly qualified Cornell students to register in the school during their senior year, thereby earning a master's degree in less than the usual time.

The Ph.D. program, administered through the Graduate School, provides an advanced and comprehensive education in administration, primarily for those who seek careers in teaching and research.

More detailed information about these programs is available in the *Announcement of the Graduate School of Business and Public Administration*, obtainable from the Director of Admissions and Student Affairs, Graduate School of Business and Public Administration, Malott Hall.

College of Engineering

Administration

Thomas E. Everhart, Dean
 Malcolm S. Burton, Associate Dean
 Richard H. Lance, Associate Dean
 Paul R. McIsaac, Associate Dean
 John F. McManus, Associate Dean
 Ron W. Simmons, Assistant Dean
 David C. Johnson, Assistant Dean and Director of Admissions and Placement
 Maria T. Blackburn, Assistant Director of Admissions
 Arthur A. McCombs, Assistant Director of Admissions
 Robert E. Gardner, Director of Advising and Counseling
 Donald F. Berth, Director of Engineering Projects
 Jane H. Pirkio, Registrar

Facilities

Most of the academic units of the College of Engineering are centered in the ten modern buildings located on the Engineering Quadrangle. Facilities for applied and engineering physics are located in Clark Hall on the College of Arts and Sciences campus.

Special Facilities Used in Engineering

Cornell Computing Facility. Principally an IBM 370/168 system, including a central facility, five satellite stations, and teletypewriter terminals.

Cornell High Energy Synchrotron Source. A synchrotron radiation laboratory operated in conjunction with the University's high-energy storage ring.

Laboratory of Plasma Studies. A center for interdisciplinary research in plasma physics and lasers.

Materials Science Center. Provides highly sophisticated equipment for interdisciplinary research.

National Astronomy and Ionosphere Center (Arecibo). The world's largest radio-radar telescope facility, operated by Cornell University in Arecibo, Puerto Rico.

National Research and Resource Facility for Submicron Structures. A new interdisciplinary facility centered in the School of Electrical Engineering.

Ward Laboratory of Nuclear Engineering. Irradiation, isotope production, and activation analysis facilities for interdisciplinary research.

Degree Programs

Cornell programs in engineering and applied science lead to the degrees of Bachelor of Science, Master of Engineering (with field designation), Master of Science, and Doctor of Philosophy.

General academic information concerning the undergraduate degree is given in "Undergraduate Study." Underclass curricula are described under Division of Basic Studies. Upperclass and M.Eng. curricula are described in the following pages under the various academic areas. M.S. and Ph.D. programs, which are organized under graduate fields of study, are described in the

Announcement of the Graduate School and the announcement Graduate Study in Engineering and Applied Science.

The one-year M.Eng. programs are discussed in connection with the upperclass engineering field programs because the curricula are integrated. Cornell baccalaureate engineering graduates frequently continue their studies in the M.Eng. program, although the program is also open to qualified graduates of other schools. The eleven Master of Engineering degrees, and the academic areas under which they are described, are listed below.

M.Eng. (Aerospace): Mechanical and Aerospace Engineering

M.Eng. (Agricultural): Agricultural Engineering

M.Eng. (Chemical): Chemical Engineering

M.Eng. (Civil): Civil and Environmental Engineering

M.Eng. (Electrical): Electrical Engineering

M.Eng. (Engineering Mechanics): Theoretical and Applied Mechanics

M.Eng. (Engineering Physics): Applied and Engineering Physics

M.Eng. (OR&IE): Operations Research and Industrial Engineering

M.Eng. (Materials): Materials Science and Engineering

M.Eng. (Mechanical): Mechanical and Aerospace Engineering

M.Eng. (Nuclear): Nuclear Science and Engineering

Cornell engineering graduates will generally be admitted to the M.Eng. program if they have cumulative grade-point averages of at least 2.5 or if they have demonstrated by their performances in their major fields that they have the ability to be successful in graduate study; a petition is required if the grade-point average is below 2.5. Other applicants must have a baccalaureate degree from an engineering program accredited by the Engineers Council for Professional Development or its equivalent in an area of engineering or science that is judged appropriate for the proposed field of study. They must also present evidence of undergraduate preparation equivalent to that provided by a Cornell undergraduate engineering education: a transcript, two letters of recommendation, and a statement of academic purpose. A candidate who is admitted with an undergraduate background that is judged inadequate must make up any deficiencies in addition to fulfilling the regular course requirements for the degree. Application forms and further information are available from the chairperson of the Graduate Professional Programs Committee, 319 Upson Hall.

Undergraduate Study

Undergraduate degrees are offered in the following areas:

	Degree	HEGIS Code
Agricultural Engineering*	B.S.	0903
Chemical Engineering	B.S.	0906
Civil and Environmental Engineering	B.S.	0908
College Program	B.S.	0901
Computer Science	B.S.	
Electrical Engineering	B.S.	0919
Engineering Physics	B.S.	0919
Geological Sciences	B.S.	1914
Materials Science and Engineering	B.S.	0915
Mechanical Engineering	B.S.	0910
Operations Research and Industrial Engineering	B.S.	0913

The general requirement for the B.S. degree is forty courses (a minimum of 127 credits), normally taken in four years of study.

The Underclass Program

All undergraduate engineering curricula (except in agricultural engineering) begin with a basic two-year program described in the following section on Division of Basic Studies. This program provides a foundation in mathematics, science, and engineering fundamentals and, in addition, elective course work in engineering core sciences, liberal studies, and natural or social sciences.

Upperclass Field Programs

In the junior year most students enter field programs, which are offered in the areas listed above. These programs are described under the appropriate academic areas (for engineering physics, see the section, "Applied and Engineering Physics"). An alternative is the College Program, which permits a student to design an individualized program and is described below.

A student interested in bioengineering may arrange a suitable curriculum within one of the field programs (most programs can accommodate this specialty) or may pursue an individually planned course of study through the College Program. Before enrolling in courses for the sophomore year, a bioengineering student should obtain from the Engineering Advising and Counseling Center a copy of *The Bioengineering Handbook*, which provides the information necessary for planning a suitable curriculum.

Course requirements for all upperclass field programs follow the guidelines below.

	Minimum credits
Twelve field-designated courses	36
Four liberal studies electives, two of which must be at an upper-division level (300- or 400-level courses)	12
Two free elective courses	6
Two technical elective courses	6

College Program

Individually arranged courses of study under the College Program are possible for those whose educational objectives cannot be met by one of the regular field

programs. Often the desired curriculum is in an interdisciplinary area. Each program is developed by the student in consultation with faculty advisers and must be approved by the College Program Committee, which is responsible for supervising the student's work.

Students apply to enter the College Program early in the second term of the sophomore year. A student may receive assistance in developing a coherent program from professors in the proposed major and minor subject areas who may be recommended by the College Program Committee or suggested by the student. If approved, the program is the curricular contract to which the student must adhere.

Every curriculum in the College Program, with the exception of certain faculty-sponsored programs, must comprise an engineering major and a minor. The major may be in any subject area offered by schools or departments of the college; the minor may be in a second engineering subject area or in a logically connected nonengineering area. The combinations must clearly form an engineering education in scope and in substance and should include engineering design and synthesis as well as engineering sciences. In addition to fourteen courses in the major and minor subjects, including at least seven engineering courses, each program includes four liberal electives and two free electives.

A number of curricula in the College Program have been developed and are sponsored by groups of faculty members; these are described below.

Energy Conversion. The College Program in Energy Conversion combines elements of three conventional disciplines — nuclear, thermal, and electrical engineering — in a broadly based curriculum aimed at meeting the accelerating energy needs of society.

Engineering Science. The College Program in Engineering Science, sponsored by faculty members of the Department of Theoretical and Applied Mechanics, requires additional mathematics, physics, mechanics, and engineering analysis courses beyond those in the underclass program.

Environmental and Public Systems. Systems analysis is widely used in the planning and management of environmental-quality and public systems, and students can specialize in this area with a sponsored college program. These students will generally concentrate in *water resources, ecosystems management, transportation, or other studies of public systems.*

Regional Science. This interdisciplinary course of study embraces economics, statistics, planning, and engineering in the planning of engineering works and the assessment of environmental impacts.

Further information about the College Program, including the special sponsored curricula, may be obtained from the College Program Office, 170 Olin Hall.

Dual Degree Option

A special academic option, intended for superior students, is the dual degree program in which both Bachelor of Science and Bachelor of Arts degrees can be earned in five years. Students may register in either the College of Engineering or the College of Arts and Sciences as freshmen and, after acceptance of their application, begin

*To major in agricultural engineering, students enroll in the College of Agriculture and Life Sciences for the first three years and in the College of Engineering for the fourth year.

the dual program in their second or third year. Those interested should contact Associate Dean Burton, 170 Olin Hall.

Advanced Placement and Transfer Credit

A growing number of students entering the College of Engineering are eligible to receive advanced placement (AP) credit toward degree requirements in recognition of demonstrated academic proficiency. Students may qualify for AP credit in one of two ways:

- 1) by receiving sufficiently high scores on subject-based advanced placement examinations that are prepared, administered, and scored by the College Entrance Examination Board (CEEB); or
- 2) by receiving sufficiently high scores on Cornell's departmental placement examinations, which are normally administered during orientation week before fall-term classes begin. Advanced placement will be granted only to first-term freshmen, and the placement examinations will be scored before the students begin classes.

Advanced placement academic credit is intended to permit students to develop more challenging and stimulating programs of study. Three ways that freshmen may use such credit are detailed below.

- 1) AP credit can be used to fulfill basic requirements, thus permitting advanced study in the same subject area or enrollment in additional nontechnical elective courses.
- 2) AP credit can be used to reduce a student's first-semester program and thus make the transition to the Cornell environment easier. (A minimum of 12 credits must be taken during the first semester.)
- 3) In a few cases, students may receive enough AP credit to complete the B.S. degree requirements ahead of time.

Credit for courses is transferred under certain conditions to entering freshmen and transfer students who have actually completed college courses with grades of C or higher. Such courses must have been taught in the collegiate environment by full-fledged faculty members and must represent academic work in excess of that required for the secondary school diploma.

College courses completed under the auspices of cooperative college-high school programs may be considered for an exception to these general policies concerning advanced standing. Such courses will not, however, automatically give credit; students must be prepared to document academic proficiency by taking the appropriate CEEB or Cornell departmental placement examination, as described above.

The college's policies concerning advanced placement and transfer credit and the use of such credit in developing undergraduate programs are fully described in the publication *Advanced Placement for Engineers*, which may be obtained at the Engineering Advising and Counseling Center, 170 Olin Hall, or the Engineering Admissions Office, 221 Carpenter Hall.

Academic Standing

The requirements for good standing in the college vary slightly among the different divisions. Freshmen must have a grade point average of 1.7 or higher with no Failing,

Unsatisfactory, or Incomplete grades. Sophomore requirements are the same, except that the grade point average must be at least 2.0. Upperclass requirements depend upon the field of registry.

Dean's List Citations are presented each semester to those engineering students with exemplary academic records. The criteria for this honor are determined by the dean of the college. In 1978-79 a term average of 3.25 or higher was required, with no grades of F, U, or INC, and 12 credits or more of letter grades.

Division of Basic Studies

Students in the College of Engineering are enrolled for the first two years of their undergraduate education in the Division of Basic Studies.

The normal academic load is five courses each term. Many of these are elective, but the freshman and sophomore students must satisfy certain requirements:

- 1) A sequence of four courses in mathematics and a three-term sequence in physics are required of all undergraduates. Freshmen enroll in chemistry during the first term and should elect a second term of chemistry if they plan a chemistry-related upperclass program.
- 2) A two-term sequence in basic engineering subjects, DBS 105, Introduction to Computer Programming, and DBS 106, Engineering Perspectives, is required of freshmen. Students who intend to specialize in bioengineering or premedicine may substitute Biological Sciences 102 plus 104 or Biological Sciences 106 for DBS 106.
- 3) One natural science or social science course is required in each term of the freshman year. Students interested in bioengineering or premedical studies should take biology and chemistry as freshmen. Students who elect to begin physics in their first term may postpone the natural or social science elective and take it their fourth term.
- 4) During the sophomore year students take four engineering core science courses, selected in consultation with a faculty adviser.
- 5) All engineering students are required to complete eight liberal studies courses (24 credits) before graduation. Freshmen must select their liberal electives from the Freshman Seminar courses. Two liberal studies electives are normally completed during the sophomore year. However, students whose career goals require them to do so, may substitute introductory courses in the natural sciences (e.g., biology or organic chemistry) for their liberal studies electives during the sophomore year, and defer these electives until the junior and senior years. The liberal studies electives may include courses in the humanities, social sciences, modern foreign languages, and expressive arts. At least two of the liberal studies elective courses (6 credits minimum) must be at the upperclass level (300- or 400-level courses).
- 6) All undergraduate students must complete the University requirement in physical education.

Freshman and Sophomore Curricula

Typical programs for the freshman and sophomore years are given as examples. It should be noted that there are many variations, depending on each student's individual background and educational and career plans.

Term 1	Credits
Math 191 or 193, Calculus for Engineers	4
Chem 207, General Chemistry	4
Freshman engineering course, DBS 105 or 106	3
Natural or social science elective	3
Freshman Seminar	3
Term 2	
Math 192 or 194, Calculus for Engineers	4
Phys 112, Physics I	4
Freshmen engineering course, DBS 105 or 106	3
Natural or social science elective*	3
Freshman Seminar	3
Term 3	
Math 293, Engineering Mathematics	4
Phys 213, Physics II	4
Engineering core science elective	3
Engineering core science elective	3
Liberal studies elective	3
Term 4	
Math 294, Engineering Mathematics	3
Phys 214, Physics III	4
Engineering core science elective	3
Engineering core science elective	3
Liberal studies elective	3

*Students who wish to major in chemical engineering and students who are interested primarily in bioengineering and premedical studies must take Chemistry 208 during the freshman year. Chemical engineering students will select a considerably different program in the sophomore year (see discussion under Engineering Core Sciences).

Engineering Core Sciences

The four engineering core science courses required in the sophomore year are selected from the four groups listed in *Cornell University: Description of Courses*.

An important consideration in the choice of these courses is that each upperclass field may specify a particular engineering core science as a prerequisite for enrollment in the junior year. The courses required for entry into the different field programs are:

Applied and Engineering Physics: M&AE 221
 Chemical Engineering: Chem E 110 or 111*
 Civil and Environmental Engineering: T&AM 202
 Computer Science: Com S 211
 Electrical Engineering: Ele E 210
 Geological Sciences: no requirement
 Materials Science and Engineering: no requirement
 Mechanical and Aerospace Engineering: T&AM 202
 Operations Research and Industrial Engineering: OR&IE 260

*Students intending to enter chemical engineering must also take Chemistry 287, 289, and Chemistry 288, 290 during the sophomore year. Only two of the Group IV courses may be counted toward the four engineering core sciences required of all sophomores. Students who take three courses from Group IV during the sophomore year may be unable to complete the engineering core science requirements that year, and may defer the fourth engineering core science until the junior year.

Agricultural Engineering

N. R. Scott, chairman; L. D. Albright, R. D. Black, J. R. Cooke, R. B. Furry, W. W. Gunkel, D. A. Haith, L. H. Irwin, W. J. Jewell, G. Levine, R. C. Loehr, H. A. Longhouse, R. T. Lorenzen, D. C. Ludington, W. F. Millier, G. E. Rehkugler, M. F. Walter

Bachelor of Science Curriculum

Students who plan to enter the Field Program of Agricultural Engineering must apply for admission to the College of Agriculture and Life Sciences for the first three years of college work, and then transfer to the College of Engineering for the fourth year.

The curriculum for the freshman and sophomore years is outlined below.

Term 1	Credits
Math 191, Calculus for Engineers	4
Ag En 151, Introduction to Agricultural Engineering and Computing	3
Chemistry 103 or 207	3
Biological Sciences 101 and 103 or 109	4
Liberal studies elective (Freshman Seminar)	3
Term 2	
Math 192, Calculus for Engineers	4
Phys 112, Physics I	4
Ag En 152, Engineering Graphics	3
Biological Sciences 102 and 104 or 110	4
Liberal studies elective (Freshman Seminar)	3
Term 3	
Math 293, Engineering Mathematics	4
Phys 213, Physics II	4
Engineering core science*	3
Engineering core science*	3
Liberal studies elective	3
Term 4	
Math 294, Engineering Mathematics	4
Phys 214, Physics III	4
Engineering core science*	3
Engineering core science*	3
Liberal studies elective	3

In addition to these courses, all freshmen and sophomores must satisfy the University's requirement in physical education.

The curriculum for terms 5 through 8 must include:

- 1) Engineering: a minimum of 30 credits in (a) agricultural engineering — 12 or more credits at or above the 450 level, and (b) engineering sciences
- 2) Biological sciences or agricultural electives: a minimum of 12 credits
- 3) Liberal studies electives: a minimum of 12 credits
- 4) Free electives: a minimum of 6 credits

Master of Engineering (Agricultural) Degree Program

The program for the M.Eng. (Agricultural) degree is intended primarily for those students who plan to enter engineering practice rather than for those who expect to study for the doctorate. The curriculum is planned as an

*The engineering core science courses must include T&AM 202, Mechanics of Solids; T&AM 203, Dynamics; and M&AE 221, Thermodynamics.

extension of the Cornell undergraduate program in agricultural engineering, but can accommodate graduates of other engineering programs. General admission and degree requirements are described in the introductory section under "College of Engineering."

A candidate for the M.Eng. (Agricultural) degree may choose to concentrate in one of the subareas of agricultural engineering or take a broad program without specialization. The subareas are: (a) power and machinery, (b) soils and water engineering, (c) agricultural structures and associated systems, (d) electric power and processing, (e) energy management, (f) agricultural waste management, (g) bioengineering, (h) secondary road design and construction, and (i) food engineering. Engineering electives are chosen from among subject areas relevant to agricultural engineering, such as thermal engineering, mechanical design and analysis, theoretical and applied mechanics, structural engineering, hydraulics, environmental engineering, soil engineering, and waste management.

Applied and Engineering Physics

T. A. Cool, acting director; P. L. Hartman, associate director; B. W. Batterman, R. A. Buhrman, K. B. Cady, D. D. Clark, R. K. Clayton, H. H. Fleischmann, M. S. Isaacson, V. O. Kostroun, J. A. Krumhansl, A. Kuckes, B. R. Kusse, A. Lewis, R. L. Liboff, R. V. Lovelace, M. S. Nelkin, T. N. Rhodin, M. M. Salpeter, B. M. Siegel, J. Silcox, R. N. Sudan, W. W. Webb, G. J. Wolga.

Bachelor of Science Curriculum

At the upperclass level students may enroll in the Field Program in Engineering Physics, which is designed to develop proficiency in physics and applied mathematics. Its distinguishing feature is a focus on fundamental knowledge that has broad applicability to engineering and to other sciences. The program allows students to choose areas of concentration within and outside of physics during the undergraduate years.

Most applied and engineering physics graduates go on to advanced study in a wide variety of fields, including astrophysics, atmospheric sciences, biophysics, energy conversion, environmental science, geophysics, materials science and engineering, nuclear engineering, nuclear physics, oceanography, plasma physics, quantum optics, and solid-state electronics. In addition to M.S. and Ph.D. programs in these areas, the possibilities include professional Master of Engineering programs in engineering physics, nuclear engineering, or aerospace engineering. Further study in other professional fields for which a background in applied science is less directly applicable is also a possibility. Baccalaureate graduates also go directly to industrial positions.

Underclass students who are planning to enter the Field Program in Engineering Physics are encouraged to register in honors sections of physics and mathematics during the first two years. Those who have advanced standing in mathematics when they matriculate in the college are encouraged to take Physics 112 in the fall term of the freshman year and Applied Mathematics I in the spring term of the sophomore year. Of the core engineering sciences studied in the first two years, a course in thermodynamics (M&AE 221 or Chemistry 287) is required. The courses A&EP 217, Contemporary Topics in Applied

Physics, and A&EP 206, The Physics of Life, are strongly recommended for the sophomore year, the latter particularly for students with an interest in biophysics.

The following curriculum, or its equivalent, constitutes the upperclass field program.

Term 5	Credits
A&EP 333, Mechanics of Particles and Solid Bodies	4
A&EP 355, Intermediate Electromagnetism	4
Applied Mathematics I*	4
Free elective	3 or 4
Liberal studies elective	3 or 4
Term 6	
A&EP 361, Introductory Quantum Mechanics	4
A&EP 356, Intermediate Electrodynamics	4
Applied Mathematics II*	4
Electronic Circuits†	3 or 4
Liberal studies elective	3 or 4
Term 7	
A&EP 423, Statistical Thermodynamics	4
Phys 410, Advanced Experimental Physics	4
Applied Mathematics III*	4
Technical elective	3 or 4
Liberal studies elective	3 or 4
Term 8	
A&EP 434, Continuum Physics	4
Applications of Quantum Mechanics‡	3 or 4
Free elective	3 or 4
Technical elective	3 or 4
Liberal studies elective	3 or 4

Considerable flexibility is possible in the scheduling of these courses. For example, Physics 410 may be taken in term 7 or in term 8. Quantum mechanics can be studied in term 6 as A&EP 361 or in term 7 as Physics 443. The course in applications of quantum mechanics can be taken whenever the appropriate prerequisite has been met. If scheduling conflicts arise, the school may allow substitutions of courses nearly equivalent to the listed required courses: Physics 325–326 and Electrical Engineering 303–304 are similar to A&EP 355–356; Physics 318 (offered in the spring) and T&AM 670 are similar to A&EP 333; and a number of advanced courses in fluid mechanics or elasticity are similar to A&EP 434.

Free and technical electives need not be all formal course work; qualified students may undertake informal study under the direction of a member of the faculty. This may include research projects in areas in which faculty members are active. These areas include electron microscopy and diffraction, quantum electronics, solid-state and surface physics, atomic physics,

*Applied Mathematics I and II may be either Mathematics 421–422 or T&AM 610–611. Applied Mathematics III may be Mathematics 423, T&AM 613–614, or another course such as Mathematics 411, 427, or 471. Alternate courses will be considered upon petition.

†Electronic circuits may be A&EP 363 or an equivalent junior-level electronics course.

‡A choice of the following courses may be made: Phys 454, Introductory Solid-State Physics; Phys 444, Nuclear and High-Energy Particle Physics; A&EP 609, Low-Energy Nuclear Physics (fall); A&EP 401, Physics of Atomic and Molecular Processes (fall); Ele E 731, Quantum Electronics I (fall).

geophysics, biophysics, nuclear structure physics, nuclear engineering, and plasma physics. While free electives may be selected (with the consent of the faculty adviser) from among almost all the courses offered at the University, the student is encouraged to select those that will provide further preparation in the area of technical interest. The minimum requirement is two courses or 6 credits.

The engineering physics student is expected to pass every course for which he or she is registered, to earn a grade of C or better in specific required courses, and to attain each term an overall grade-point average of at least 2.3.

Areas of Concentration An area of concentration in an interdisciplinary study, such as biophysics, geophysics, nuclear engineering, lasers and quantum electronics, or plasma physics and materials science, may be arranged through a judicious choice of electives in the freshman and sophomore as well as the upperclass years. Examples of many such programs are described in a special brochure available from the School of Applied and Engineering Physics, Clark Hall. Students interested in this kind of program are advised to consult as early as possible a professor active in the field of interest or with the associate director of the school, P. L. Hartman.

Master of Engineering (Engineering Physics) Degree Program

In addition to preparing students for professional employment, the M.Eng. (Engineering Physics) degree program serves as a basis for doctoral study in applied physics or in certain areas that involve a combination of engineering or applied physics with another professional but nontechnical discipline. Specific requirements for the degree are the following:

- 1) Thirty credits of required course work must include (a) a minimum of 6 credits in related graduate-level courses; (b) a graduate-level course that provides a good background in quantum mechanics; and (c) a fourth-year or graduate-level course in statistical mechanics or the equivalent. If the student's undergraduate program included courses that satisfy these requirements, he or she may substitute other graduate courses. Undergraduate courses that permit exploratory work in a special field of interest may be permitted with the approval of the program chairman. A further program requirement is attendance at approximately fifteen University seminars or colloquia chosen in consultation with the program chairman.
- 2) An informal design study or project for at least 6 credits is required. It may be experimental or analytical, but must represent individual effort and be summarized with a formal report. If the project is experimental, one graduate-level course in mathematics or applied mathematics is required; students whose mathematical background is not equivalent to that of graduates of the Cornell engineering physics undergraduate program may satisfy this requirement by taking one of the upperclass mathematics courses included in the Field Program in Engineering Physics. If the project is analytical, one graduate-level course in experimental laboratory physics, or its equivalent, is required.

Chemical Engineering

J. C. Smith, director; G. G. Cocks, C. Cohen, R. K. Finn, K. E. Gubbins, P. Harriott, R. P. Merrill, F. Rodriguez, G. F. Scheele, M. L. Shuler, R. G. Thorpe, R. L. VonBerg, H. F. Wiegandt

Bachelor of Science Curriculum

The undergraduate Field Program in Chemical Engineering comprises a coordinated sequence of courses beginning in the sophomore year and extending through the fourth year. Special programs in biological engineering, polymeric materials, and chemical microscopy are available. Underclass students who plan to enter the Field Program in Chemical Engineering register for Chemistry 287–288, Chemistry 289–290, and Chemical Engineering 110 or 111 during the sophomore year. The program for the upperclass years is as follows:

	Credits
Term 5	
Chem 357, Organic Chemistry*	3
Chem 251, Organic Chemistry Laboratory	2
Chem E 311, Chemical Engineering Thermodynamics I	3
Chem E 430, Introduction to Rate Processes	3
Elective†	3
Liberal studies elective	3
Term 6	
Chem 358, Organic Chemistry*	3
Chem E 312, Chemical Engineering Thermodynamics II	3
Chem E 321, Materials‡	4
Chem E 431, Analysis of Separation Processes	3
Liberal studies elective	3
Term 7	
Chem E 101, Nonresident Lectures	0
Chem E 410, Reaction Kinetics and Reactor Design	3
Chem E 432, Chemical Engineering Laboratory	3
Chem E 461, Chemical Process Evaluation	3
Elective†	3
Liberal studies elective	3
Term 8	
Chem E 462, Chemical Process Synthesis	4
Electives†	9
Liberal studies elective	3

*Students in the Engineering Cooperative Program substitute Chem 253, Organic Chemistry (a 4-credit course), for Chemistry 357; and Chem E 421, Industrial Organic Processes (a 2-credit course), for Chemistry 358.

†The electives in terms 5 to 8 must comprise 3 credits of the postponed engineering core science course (see the section on Basic Studies); 6 credits of technical electives; and at least 6 credits of free electives. One of the electives in term 8 should be in a chemical engineering subject.

‡Students who have an approved plan for concentration in a minor topical area and who require more elective courses than the number scheduled to accomplish their goals may substitute additional electives for Chem E 321, Materials, provided that MS&E 261, Introduction to Mechanical Properties of Materials, has been chosen as an engineering core science during the sophomore year. This option may be of interest to students planning concentrations in such areas as biological engineering, environmental studies, advanced chemistry, and systems and operations research.

Master of Engineering (Chemical) Degree Program

The professional master's degree, M.Eng. (Chemical), is awarded at the end of one year of graduate study with successful completion of 30 credits of required and elective courses in technical fields including engineering, mathematics, chemistry, physics, and biology. Courses emphasize design and optimization based on the economic factors that affect process, equipment, and plant design alternatives. A design project is involved in the required courses. General admission and degree requirements are described in the college's introductory section.

Civil and Environmental Engineering

School of Civil and Environmental Engineering: R. N. White, director; G. B. Lyon, assistant director

Department of Structural Engineering: A. H. Nilson, chairman; J. F. Abel, P. Gergely, A. R. Ingraffea, F. H. Kulhawy, W. McGuire, T. D. O'Rourke, T. Peköz, D. A. Sangrey, F. O. Slate, R. N. White

Department of Environmental Engineering: D. P. Loucks, chairman; J. J. Bisogni, W. H. Brutsaert, R. I. Dick, L. B. Dworsky, G. P. Fisher, C. D. Gates, J. M. Gossett, D. A. Haith, G. H. Jirka, J. A. Liggett, P. L.-F. Liu, R. C. Loehr, W. R. Lynn, A. H. Meyburg, N. Orloff, R. E. Schuler, C. Shoemaker, J. R. Stedinger

Program in Environmental Sensing, Measurement, and Evaluation: T. Liang, G. B. Lyon, A. J. McNair

Bachelor of Science Curriculum

There are two subject departments in the School of Civil and Environmental Engineering, and a Program in Environmental Sensing, Measurement, and Evaluation. Undergraduate specialties can be arranged in a number of subject areas encompassed by these units. The major areas in the Department of Structural Engineering are: analysis, behavior, and design of structures; structural materials; and geotechnical engineering. Within the Department of Environmental Engineering there are five major areas: environmental quality engineering; fluid mechanics and hydrology; public systems and environmental systems engineering; transportation; and water resources planning and analysis.

Students planning to enter the Field Program in Civil and Environmental Engineering as juniors are required to take T&AM 202, Mechanics of Solids, as one of the sophomore engineering core sciences. It is recommended that they also take OR&IE 260, Introductory Engineering Probability, and either T&AM 203, Dynamics, or MS&E 261, Mechanical Properties of Materials, as two of the other sophomore engineering core science courses. These three courses are required in the field program.

At the upperclass level the curriculum is planned to provide an introduction to the several diverse areas within the field of civil and environmental engineering and to permit more detailed study in at least one area through appropriate selection of electives. A recommended sequence, including the required courses, is given below.

Term 5	Credits
T&AM 203, Dynamics*	3
CEE C301, Fluid Mechanics I	4
CEE G301, Structural Engineering I	4
OR&IE 260, Introductory Engineering Probability*	3
Liberal studies elective	3
Term 6	
MS&E 261, Introduction to Mechanical Properties of Materials*	3
CEE E301, Environmental Quality Engineering	4
CEE D301, Introductory Soil Mechanics	3
CEE B303, Engineering Economics and Systems Analysis	3
Liberal studies elective	3
Term 7	
Civil and environmental engineering distribution courses (2 courses)†	6
Technical elective	3
Free elective	3
Liberal studies elective	3
Term 8	
Civil and environmental engineering distribution courses (2 courses)†	6
Technical elective	3
Free elective	3
Liberal studies elective	3

A student with a well-defined special interest may develop a more individualized program in consultation with a faculty adviser from the school and submit it to the Field Curriculum Committee for approval. It is advisable for a student planning such a program to submit an application as early as the first term of the sophomore year.

Master of Engineering (Civil) Degree Program

The M.Eng. (Civil) degree program is designed to prepare a student for professional practice in civil and environmental engineering. Requirements, in addition to the general ones for the degree (see the introductory section under College of Engineering), include three required courses: one in professional engineering practice, CEE K520, and two in design, CEE K510 and K511. The design sequence requires the completion of a project involving synthesis, analysis, decision making, and application of engineering judgment, and includes an intensive, full-day, three-week session between semesters.

The remainder of a student's program of studies is designed individually in consultation with an academic adviser and then submitted to the school's Professional Degree Committee for approval. The objectives in course planning are to provide breadth in the fundamentals of civil and environmental engineering, and specialization in one area with some concentration in a related area. Most students will have achieved the necessary breadth during their undergraduate years. Some, however, may require additional course work in the graduate program to fulfill the breadth requirement. Students in the School of Civil and Environmental Engineering may avail themselves of a number of graduate course offerings in fields related to their major interest but outside of the school.

*Satisfactory completion of these engineering core science courses in the Division of Basic Studies increases the number of technical electives accordingly.

†Information about distribution requirements may be obtained from the student's faculty adviser.

Computer Science

J. Hartmanis, chairman; G. R. Andrews, R. S. Cartwright, R. L. Constable, R. Conway, A. J. Demers, J. E. Dennis, Jr., J. E. Donahue, D. Gries, J. E. Hopcroft, F. Luk, G. Salton, R. Teitelbaum, F. Schneider, C. F. Van Loan

Bachelor of Science Curriculum

The Field Program in Computer Science is intended for students who are interested in the computing process and in the fundamental structure of algorithms, data, and languages that underlie that process. Those interested in the application of computers in some particular area will ordinarily be advised to major in the applications area and take elective course work in computer science.

A student intending to enter the computer science field program must take Computer Science 211 as a core science elective in the Division of Basic Studies. Engineering core sciences Computer Science 321 and Electrical Engineering 230 are also required for completion of the field program, but need not be taken prior to admission. The requirements of the field program for terms 5 through 8 are:

Term 5	Credits
Com S 280, Discrete Structures	4
Com S 314, Computer Systems and Organization	4
Com S 410, Data Structures	4
Technical or free elective*	3
Liberal studies elective	3
Term 6	
Com S 414, Systems Programming	4
Field-restricted elective†	3
Technical or free electives*	6
Liberal studies elective	3
Term 7	
Com S 481, Theory of Computing I	4
Field-restricted electives†	6
Technical or free elective*	3
Liberal studies elective	3
Term 8	
Com S 482, Theory of Computing II	4
Field-restricted electives†	6
Technical or free elective*	3
Liberal studies elective	3

*Core sciences Computer Science 321 and Electrical Engineering 230 are required for completion of the program. If not taken in the Division of Basic Studies prior to admission, they must be taken as technical electives.

†The five field-restricted electives are subject to the following constraints: (a) one must be a computer science course number 322 or higher; (b) one must be a mathematically-oriented course, approved by the student's adviser; (c) three are expected to form a coherent course sequence in operations research and industrial engineering, in electrical engineering (but note that Electrical Engineering 230 cannot be considered part of this sequence), or in some other technical area.

Electrical Engineering

G. C. Dalman, director; J. L. Rosson, associate director; P. D. Ankrum, J. M. Ballantyne, T. Berger, R. Bolgiano, Jr., N. H. Bryant, R. R. Capranica, H. J. Carlin, L. F. Eastman, W. H. Erickson, T. E. Everhart, D. T. Farley, T. L. Fine, J. Frey, D. W. Hammerstrom, W. J. Heetderks, M. C. Kelley, M. Kim, W. H. Ku, C. A. Lee, R. L. Liboff, S. Linke, R. A. McFarlane, H. S. McGaughan, P. R. McIsaac, J. A. Nation, B. Nichols, E. Ott, C. Pottle, R. N. Sudan, C. L. Tang, R. J. Thomas, J. S. Thorp, H. C. Torng, N. M. Vrana, C. B. Wharton, E. D. Wolf, G. J. Wolga

Bachelor of Science Curriculum

Reflecting the large scope of this engineering discipline, the undergraduate Field Program in Electrical Engineering provides a broad foundation in a number of important areas in addition to specialization in one or more.

Students can choose, for example, to concentrate in bioengineering; computer engineering; control systems; electronic circuit design; information, communications, and decision theory; microwave electronics; plasma physics; power and energy systems; quantum and optical electronics; radio and atmospheric physics; or semiconductor devices and applications.

Required courses are included in the following standard curriculum for the field program:

Term 5	Credits
Ele E 301, Electrical Signals and Systems I	4
Ele E 303, Electromagnetic Theory I	4
Ele E 315, Electrical Laboratory I	4
Ele E 230, Introduction to Digital Systems*	3
Liberal studies elective	3
Term 6	
Ele E 306, Fundamentals of Quantum and Solid-State Electronics	4
Ele E 316, Electrical Laboratory II	4
Electrical engineering elective†	4
Electrical engineering elective†	3 or 4
Liberal studies elective	3
Term 7	
Electrical engineering elective†	3 or 4
Electrical engineering elective with laboratory	3 or 4
Technical elective	3
Free elective	3
Liberal studies elective	3
Term 8	
Electrical engineering elective†	3 or 4
Electrical engineering elective with laboratory	3 or 4
Technical elective	3
Free elective	3
Liberal studies elective	3

Specialization is achieved through the four senior-year electrical engineering electives, which are selected from more than sixty offerings of the school. With the approval of

*Satisfactory completion of Electrical Engineering 230 as a core science in the Division of Basic Studies allows for the substitution of a technical elective for this requirement.

†One electrical engineering elective must be selected from among Ele E 302, 304, 310, or 407. One other electrical engineering elective must be selected which has either Ele E 302, 304, 306, or 310 as a prerequisite.

his or her faculty adviser, a student with special career goals may substitute appropriate technical or professional electives for two electrical engineering electives.

A brochure describing the field program and concentrations in detail may be obtained from the School of Electrical Engineering, Phillips Hall.

Master of Engineering (Electrical) Degree Program

The degree of M.Eng. (Electrical) prepares the student either for professional work in this area of engineering or for more advanced graduate study in the doctoral program. The M.Eng. differs from the M.S. program mainly in its emphasis, which is on design capability rather than basic research. The 30-credit M.Eng. (Electrical) curriculum includes two two-term course sequences in electrical engineering and the design project, which may account for 3 to 10 credits. General admission and degree requirements are described in the college's introductory section.

Geological Sciences

J. E. Oliver, chairman; S. B. Bachman, W. A. Bassett, J. M. Bird, A. L. Bloom, L. D. Brown, J. L. Cisne, A. K. Gibbs, B. I. Isacks, D. E. Karig, S. Kaufman, R. W. Kay, F. H. T. Rhodes, C. R. Stern, W. B. Travers, D. L. Turcotte

Bachelor of Science Curriculum

Study in geological sciences is offered for students who are preparing for careers in solid earth science, for those who want a broad background in the geological sciences as preparation for careers in other fields, or for those who wish to combine geological training with other sciences such as agronomy, astronomy and space science, biological sciences, chemistry, economics, mathematics, physics, or various fields of engineering. The Department of Geological Sciences is organized as an intercollege department in the College of Arts and Sciences and the College of Engineering. College of Arts and Sciences students should consult that college's section on geological sciences as well as the course listing here.

In the College of Engineering, students interested in entering the Field Program in Geological Sciences follow the Basic Studies Program for the first two years. It is recommended that Geological Sciences 101 and 102, Chemistry 208, and, for those students interested in geobiology, Biological Sciences 101–102 and 103–104 be taken as electives during this period. The upperclass curriculum is as follows:

Term 5	Credits
Geol 355, Mineralogy, Petrology, and Geochemistry I	4
Geol 376, Historical Geology and Stratigraphy	4
Required science course	3 or 4
Liberal studies elective	3
Technical or free elective	3 or 4
Term 6	
Geol 356, Mineralogy, Petrology, and Geochemistry II	4
Geol 325, Structural Geology and Sedimentation	4
Required science course	3 or 4
Liberal studies elective	3
Geol 704, Western Field Course	6
or	
Technical or free elective	3 or 4

A summer field course is required unless approval for an alternative field experience is granted.

Term 7

Geol 345, Geomorphology	4
Required science course	3 or 4
Liberal studies elective	3
Technical or free elective	3 or 4

Term 8

Geol 388, Geophysics and Geotectonics	4
Required science course	3 or 4
Liberal studies elective	3
Technical or free elective	3 or 4
Free elective	3 or 4

Students intending to specialize in *geophysics* should select their *required sciences* from the following courses or their equivalents:

Math 421–422–423, Applicable Mathematics
T&AM 310–311, Advanced Engineering Analysis I and II
A&EP 355, Intermediate Electromagnetism
A&EP 333, Mechanics of Particles and Solid Bodies
A&EP 356, Intermediate Electrodynamics
A&EP 434, Continuum Physics
Phys 410, Advanced Experimental Physics
T&AM 450, Introduction to Continuum Mechanics

Students intending to specialize in *geochemistry* (including petrology, mineralogy, and mineral deposits) should select their *required sciences* from the following courses or their equivalents:

Chem 287–288, Introductory Physical Chemistry
Chem 300, Introductory Quantitative Analysis
Chem 301, Experimental Chemistry I
Chem 302, Experimental Chemistry II
Chem 303, Experimental Chemistry III
Chem 357–358, Introductory Organic Chemistry
Chem 389–390, Physical Chemistry I and II
MS&E 331, Structure and Properties of Materials
MS&E 335, Thermodynamics of Condensed Systems

Students intending to specialize in *geobiology* should select their *required sciences* from the following courses or their equivalents:

Bio S 310, Invertebrate Zoology
Bio S 330–331, Principles of Biochemistry
Bio S 241, Plant Biology
Bio S 448, Plants and Time (paleobotany)
Bio S 360, General Ecology
Bio S 274, The Vertebrates
Bio S 477, Organic Evolution
Bio S 281, Genetics
Chem 253, Elementary Organic Chemistry
Geol 471, Invertebrate Paleontology

Students who wish to pursue further training or immediate employment in *applied geology* (environmental and engineering geology; mineral exploration and exploitation; ground water; petroleum geology; or geological engineering) should select their *required sciences* from the following courses or their equivalents, with two of the four from the same field:

Agron 301, Identification, Appraisal, and Geography of Soils
Agron 701, Soil Chemistry
Agron 607, Soil Physics
CEE D301, Introductory Soil Mechanics
CEE D710, Engineering Behavior of Soils

CEE A685, Physical Environment Evaluation
 MS&E 331, Structure and Properties of Materials
 MS&E 366, Mechanical Properties of Materials
 CEE C301, Fluid Mechanics I
 CEE C302, Hydraulic Engineering
 CEE E301, Environmental Quality Engineering
 Math 421–422–423, Applicable Mathematics
 OR&IE 260, Introductory Engineering Probability
 OR&IE 370, Introduction to Statistical Theory with
 Engineering Applications

Students who want a more general background, or who wish to remain uncommitted with regard to specialty, must choose at least two of the four required science courses from the same field, and all four required science courses must be at the 300 level or above. The technical electives may be chosen from offerings in geological sciences or in other science or engineering fields, and may be courses also approved as required sciences. Outstanding students may request substitution of an honors thesis for a fourth-year technical elective.

Students intending to pursue graduate study in geology are reminded that many graduate schools require proficiency in reading the scientific literature in one or two of the three languages French, German, or Russian. Undergraduate preparation in at least one of these languages is therefore advantageous.

Materials Science and Engineering

A. L. Ruoff, director; D. G. Ast, J. M. Blakely, D. T. Grubb, E. W. Hart, H. H. Johnson, E. J. Kramer, D. L. Kohlstedt, C. Y. Li, R. Raj, S. L. Sass, D. N. Seidman

Bachelor of Science Curriculum

No particular engineering core science is required for entry into the upperclass Field Program in Materials Science and Engineering. The basic upperclass curriculum, which includes the required field courses, is given below. The sequence of the courses may vary, however, in accordance with the plan worked out by each student in consultation with his or her faculty adviser.

Term 5	Credits
MS&E 331, Structure and Properties of Materials	4
MS&E 335, Thermodynamics of Condensed Systems	3
MS&E 333, Research Involvement I or a Field-approved option elective*	3
Free elective	3
Liberal studies elective	3
Term 6	
MS&E 336, Kinetics, Diffusion, and Phase Transformations	3
MS&E 346, Mechanical Properties of Materials	3
MS&E 334, Research Involvement II or a Field-approved option elective*	3
Free elective	3
Liberal studies elective	3

*The Research Involvement option gives undergraduates the opportunity to work with faculty members and their research groups on current projects. The alternative option elective provides students interested in industrial careers an additional opportunity to broaden their engineering education.

Term 7

MS&E 445, Electrical and Magnetic Properties of Materials	3
MS&E 440, Macroprocessing of Materials	3
MS&E 443, Senior Materials Laboratory I†	3
Technical elective	3
Liberal studies elective	3

Term 8

MS&E 441, Microprocessing of Materials	3
MS&E 448, Current Topics in Materials	3
MS&E 444, Senior Materials Laboratory II†	3
Technical elective	3
Liberal studies elective	3

Students with a special interest in processing and applications are advised to include in their elective courses MS&E 447, Materials Engineering; MS&E 337, Materials and Manufacturing Processes; and MS&E 338, Analysis of Manufacturing Processes.

Master of Engineering (Materials) Degree Program

Students who have completed a four-year undergraduate program in engineering or the physical sciences are eligible for consideration for admission to the M.Eng. (Materials) program, which includes the following:

- 1) A project qualifying for at least 12 credits and requiring individual effort and initiative. This project, carried out under the supervision of a member of the faculty, is usually experimental, although it can be analytical.
- 2) Six credits of courses in mathematics or applied mathematics. This requirement may be satisfied by courses T&AM 310 and 311; students who have previously completed these must select other courses acceptable to the faculty.
- 3) Courses in materials science and engineering selected from any of those offered at the graduate level, or other courses approved by the faculty, required to bring the total credits to 30.

General admission and degree requirements are described in the introductory section under "College of Engineering."

Mechanical and Aerospace Engineering

A. R. George, director; J. F. Booker, assistant director; P. L. Auer, D. L. Bartel, A. H. Burstein, D. A. Caughey, B. J. Conta, P. C. T. deBoer, F. C. Gouldin, S. Jahanmir, S. Leibovich, R. L. Levin, J. L. Lumley, W. J. McLean, F. K. Moore, R. M. Phelan, S. L. Phoenix, E. L. Resler, Jr., S. F. Shen, D. L. Taylor, K. E. Torrance, K. K. Wang, Z. Warhaft, R. L. Wehe

Members of the faculty of the graduate Fields of Aerospace Engineering and of Mechanical Engineering are listed in the *Announcement of the Graduate School*.

Bachelor of Science Curriculum in Mechanical Engineering

The upperclass Field Program in Mechanical Engineering is designed to provide a broad background in this basic branch of engineering, as well as an introduction to the many professional and technical areas with which mechanical engineering is particularly concerned. Two

†One term of Senior Materials Laboratory may be replaced by Phys 360, Introductory Electronics, or by a one-term project in association with a faculty member.

main areas of concentration, corresponding to the two major streams of mechanical engineering technology, are offered in the field program.

Mechanical Systems and Design is concerned with those aspects of mechanical engineering that involve the design, analysis, and manufacture of devices, machines, and systems. Particular areas of concentration that are available are mechanical design and analysis, vehicle engineering, and manufacturing engineering.

Engineering of Energy and Fluid Systems is concerned with (1) the conversion of energy for electric power and transportation requirements (terrestrial and aerospace); (2) the study of environmental modification, which involves such areas as pollution control, refrigeration and air conditioning, acoustics and noise, and combustion engines; and (3) theoretical and experimental aspects of fluid dynamics and heat transfer.

The Field Program is open to students who have taken the course T&AM 202, Mechanics of Solids, as one of the sophomore engineering core sciences. It is recommended that underclass students who definitely intend to major in mechanical engineering also take as engineering core sciences the courses T&AM 203, Dynamics, and M&AE 221, Thermodynamics, which are required for the field program. Another course required for the field program that can be taken as a sophomore core science is Ele E 210, Introduction to Electrical Systems. Also, a student who takes MS&E 261, Introduction to Mechanical Properties of Materials, as a core science in the Division of Basic Studies need not necessarily take M&AE 311, Materials and Manufacturing Processes, which is normally part of the field program.

The twelve courses required for the Field Program in Mechanical Engineering are included in the sample curriculum outlined below. It should be noted that this is a curriculum suggested for a minimally prepared student. If some of the field requirements have been fulfilled in the Division of Basic Studies as recommended, certain electives may be substituted for them. It should also be noted that if prerequisites are met most of the listed courses may be taken in terms different from those in the sample curriculum.

<i>Term 5 (Sample Curriculum)</i>	<i>Credits</i>
T&AM 203, Dynamics	3
M&AE 221, Thermodynamics	3
M&AE 311, Materials and Manufacturing Processes	3
Mathematics elective	3
Liberal studies elective	3
<i>Term 6 (Sample Curriculum)</i>	
M&AE 325, Mechanical Design and Analysis	4
M&AE 323, Fluid Mechanics	4
Ele E 210, Introduction to Electrical Systems	3
Field elective	3
Liberal studies elective	3
<i>Term 7 (Sample Curriculum)</i>	
M&AE 324, Heat Transfer and Transport Processes	3
M&AE 326, Systems Dynamics	3
M&AE 453, Mechanical Engineering Laboratory	4
Technical elective	3
Liberal studies elective	3

<i>Term 8 (Sample Curriculum)</i>	
Field elective	3
Technical elective	3
Free elective	3
Free elective	3
Liberal studies elective	3

The mathematics elective is chosen from an approved list. The two field electives are selected from upperclass courses offered in mechanical and aerospace engineering.

Preparation in Aerospace Engineering

Although there is no separate undergraduate program in aerospace engineering, students may prepare for a career in this area by majoring in mechanical engineering and taking a number of aerospace engineering electives, such as M&AE 305, 506, 507, and 536. Students may prepare for the graduate program in aerospace engineering by majoring in mechanical engineering or through other appropriate engineering specialties such as electrical engineering, engineering physics, or physical science. Other subjects recommended as preparation for graduate study include thermodynamics, fluid mechanics, applied mathematics, chemistry, and physics.

Master of Engineering (Aerospace) Degree Program

The Master of Engineering (Aerospace) program is designed to increase the student's facility in the application of the basic sciences to important professional problems. Because aerospace engineering is continually engaged in new areas, an essential guideline for the program is to reach beyond present-day practices and techniques. This is achieved by supplying the student with the fundamental background and the analytical techniques that will remain useful in all modern engineering developments.

General admission and degree requirements are described in the introductory section under "College of Engineering."

Required courses for the M.Eng. (Aerospace) degree include four 3-credit core courses.

Core Courses Available

	<i>Credits</i>
M&AE 459, Plasmadynamics	3
M&AE 506, Aerospace Propulsion Systems	3
M&AE 507, Dynamics of Flight Vehicles	3
M&AE 543, Combustion Processes	3
M&AE 569, Mechanical and Aerospace Structures I	3
M&AE 602, Incompressible Aerodynamics	3
M&AE 603, Compressible Aerodynamics	3
M&AE 608, Physics of Fluids I	3
M&AE 610, Gasdynamics	3
M&AE 630, Atmospheric Turbulence and Micrometeorology	3
M&AE 632, Theoretical Fluid Mechanics and Aerodynamics I	3
M&AE 633, Theoretical Fluid Mechanics II	3
M&AE 648, Seminar on Combustion	3
M&AE 653, Experimental Methods in Fluid Mechanics and Combustion	3
M&AE 670, Mechanical and Aerospace Structures II	3
M&AE 704, Theory of Viscous Flows	3
M&AE 707, Aerodynamic Noise Theory	3
M&AE 734, Turbulence and Turbulent Flow	3
M&AE 737, Numerical Methods in Fluid Flow and Heat Transfer	3

Also required are 6 credits of elective subjects. A list of suggested electives is available from the M. Eng. (Aerospace) program representative in Upson Hall. Further requirements include 6 credits of mathematics (T&AM 610–611 or Mathematics 415–416 or the equivalent), participation in the weekly colloquium (1 credit each term), one advanced seminar (2 credits), and one professional design project (2 credits). This makes a total of 30 credits.

The school has particular strengths in the areas of fluid dynamics, aerodynamics, high-temperature gasdynamics, turbulence, chemical kinetics, aerodynamic noise, sonic boom, nonlinear waves, atmospheric flows, combustion processes in low-pollution engines, and solution of flow problems by finite element and other numerical methods. Professional design projects may be arranged in any of these areas.

Master of Engineering (Mechanical) Degree Program

The Master of Engineering (Mechanical) degree program provides a one-year course of study for those who wish to develop a high level of competence in current technology and engineering design.

The program is designed to be flexible so that candidates may concentrate on any of a variety of specialty areas. These areas include bioengineering, machine dynamics and control, mechanical analysis and development, vehicles and propulsion, propulsion engines, energy systems, thermal environment, manufacturing engineering, and materials removal. An individual student's curriculum includes a 6-credit design project, a major consisting of a minimum of 12 credits, and sufficient technical electives to meet the degree requirement of 30 credits.

The design project, which may be undertaken individually or by a small team, is a significant part of the program. Although "design" is interpreted broadly, the project should clearly involve the creation and evaluation of alternative solutions to an engineering problem. Each student chooses a project from a list of those offered by the faculty or proposes a project and finds a faculty member who will agree to serve as adviser. Some recent projects have been concerned with the design and analysis of crankshaft and crankcase structures, the development of equipment for holographic interferometry measurements, the design of orthopedic implants, the University's energy policy, energy self-sufficiency, a new type of wind turbine, pollution control in automobile engines, motorcycle suspensions, and the analysis and design of flywheel-internal combustion engine hybrid drives for short-range cars.

A coordinated program of courses for the entire year is agreed upon by the student and the faculty adviser. The proposed curriculum together with a statement of overall objectives and a statement of the purpose of the major is submitted for approval to the Master of Engineering Committee in the School of Mechanical and Aerospace Engineering. Any subsequent changes must also be approved by this committee.

The courses that constitute the major must be graduate-level courses in mechanical and aerospace engineering or a closely related field such as theoretical and applied mechanics. At least 21 credits of the total for the degree must be in mechanical engineering or related areas, and in general all courses must be beyond the level of those required in the undergraduate program in mechanical engineering. Credit may be granted for an

undergraduate, upper-level first course in some subject area if the student has done little or no previous work in that area, but such courses must have the special approval of the Master of Engineering Committee.

The technical electives may be courses of appropriate level in mathematics, physics, chemistry, or engineering; a maximum of 6 credits may be taken in areas other than these if the courses are part of a well-defined program leading to specific professional objectives. It is expected that all students will use technical electives to develop proficiency in mathematics beyond the minimum required of Cornell undergraduates if they have not already done so before entering the program. Courses in advanced engineering mathematics or statistics are particularly recommended.

Nuclear Science and Engineering

Faculty members in the graduate Field of Nuclear Science and Engineering who are most directly concerned with the M.Eng. (Nuclear) curriculum include K. B. Cady (faculty representative), D. D. Clark, H. H. Fleischmann, D. A. Hammer, and V. O. Kostroun.

Undergraduate Study

Although there is no special undergraduate field program in nuclear science and engineering, students who intend to enter graduate programs in this area are encouraged to begin specialization at the undergraduate level. This may be done by choice of electives within regular field programs (such as those in engineering physics, materials science and engineering, and civil, chemical, electrical, or mechanical engineering) or within the College Program.

College Programs

The suggested curriculum for the College Program in Nuclear Engineering includes A&EP 303 and 304, Introduction to Nuclear Science and Engineering I and II, plus two of the four courses A&EP 612, A&EP 651, A&EP 633, and A&EP 609. Also available is the College Program in Energy Conversion, a synthesis of nuclear, thermal, and electrical engineering. See the introductory section under "College of Engineering" for a general description of the College Program.

Master of Engineering (Nuclear) Degree Program

The two-term curriculum leading to the degree of M.Eng. (Nuclear) is intended primarily for individuals who want a terminal professional degree, but it may also serve as preparation for doctoral study in nuclear science and engineering. The course of study covers the basic principles of nuclear reactor systems with a major emphasis on reactor safety and radiation protection and control. The special facilities of the Ward Laboratory of Nuclear Engineering are described in the *Announcement of the Graduate School*.

The interdisciplinary nature of nuclear engineering allows students to enter from a variety of undergraduate specializations. The recommended background is: (1) an accredited baccalaureate degree in engineering, physics, or applied science; (2) physics, including atomic and nuclear physics; (3) mathematics, including advanced calculus; and (4) thermodynamics. Students should see that they fulfill these requirements before beginning the program. In some cases, deficiencies in preparatory work may be made up by informal study during the preceding

summer. General admissions and degree requirements are described in the introductory section under "College of Engineering."

The following courses are included in the 30-credit program:

Fall term

A&EP 612, Nuclear Reactor Theory I
A&EP 633, Nuclear Reactor Engineering
A&EP 609, Low-Energy Nuclear Physics
Technical elective

Spring term

A&EP 651, Nuclear Measurements Laboratory
Technical elective
Engineering design project
Mathematics or physics elective

Engineering electives should be in a subject area relevant to nuclear engineering such as energy conversion, radiation protection and control, feedback control systems, magnetohydrodynamics, controlled thermonuclear fusion, and environmental engineering. The list below gives typical electives.

M&AE 651, Transport Processes II
Ele E 681, Introduction to Plasma Physics
Ele E 682, Advanced Plasma Physics
M&AE 622, Introductory Magnetohydrodynamics
Ele E 671-672, Feedback Control Systems
A&EP 613, Nuclear Reactor Theory II
A&EP 652, Advanced Nuclear and Reactor Laboratory
A&EP 636, Seminar on Thermonuclear Fusion Reactors
A&EP 638, Intense Pulsed Electron and Ion Beams:
Physics and Technology
NS&E 605, Interaction of Radiation and Matter
Chem E 627, Nuclear and Reactor Engineering
MS&E 705, Nuclear Materials

Operations Research and Industrial Engineering

G. L. Nemhauser, director; W. L. Maxwell, associate director; N. U. Prabhu, graduate faculty representative; R. E. Bechhofer, L. J. Billera, R. G. Bland, J. A. Bloom, T. Boucher, R. W. Conway, D. C. Heath, W. F. Lucas, J. A. Muckstadt, T. J. Santner, L. W. Schruben, A. Schultz, Jr., M. S. Taqqu, H. M. Taylor 3d, M. J. Todd, L. E. Trotter, Jr., B. W. Turnbull, L. I. Weiss

Bachelor of Science Curriculum

During the sophomore year in the Division of Basic Studies, a student who plans to enter the Field Program in Operations Research and Industrial Engineering must elect, as one of the four engineering core sciences, OR&IE 260, Introductory Engineering Probability. Other recommended core sciences are OR&IE 213, Electrical Engineering 210, T&AM 202, and Computer Science 211. Early consultation with an OR&IE faculty member or with the associate director can be helpful in making appropriate choices. In the junior year the following courses are required:

Term 5	Credits
OR&IE 320, Optimization I	4
OR&IE 350, Cost Accounting, Analysis, and Control	4
OR&IE 370, Introduction to Statistical Theory with Engineering Applications	4
Com S 211, Computers and Programming*	3
Liberal studies elective	3

Term 6	Credits
OR&IE 321, Optimization II	3
OR&IE 361, Introductory Engineering Stochastic Processes	4
OR&IE 383, Introduction to Simulation and Database Systems	4
Behavioral science†	3
Liberal studies elective	3

*If Computer Science 211 is completed during the sophomore year, an appropriate 3-credit technical elective must be substituted.

†The behavioral science requirement can be satisfied by any one of several courses of an advanced nature, including B&PA 540 (recommended for those contemplating the pursuit of a graduate business degree), B&PA 541, Hotel Administration 211, I&LR 150, and I&LR 151. The adviser must approve the selection in all cases.

The basic senior-year program, from which individualized programs are developed, comprises the following courses:

	Credits
Four courses consisting of two two-course sequences as described below	minimum of 12
Two technical electives (these need not be sequential)	6
Two liberal studies electives	6
Two free electives	6

Available OR&IE sequences are as follows:

Industrial systems: OR&IE 410 and 421*	8
Optimization methods: two courses selected from OR&IE 431, 432, and 435	6
Applied statistics: two courses selected from OR&IE 471, 561, and 570	6 or 7

*This sequence must be selected by students who plan to participate in the cooperative program with the Graduate School of Business and Public Administration.

Students who have established specific career goals and wish to apply the OR&IE methodology in other technological areas may substitute a course sequence appropriate to the outside discipline for one of the required OR&IE sequences. Examples of possible sequences outside OR&IE are:

	Credits
Manufacturing systems: M&AE 311 and 512	6
Transportation systems: CEE F621 and F624	7
Public systems: CEE B617 and either F624 or H628	6
Electrical systems: Electrical Engineering 301 and 302	8
Computer systems: Electrical Engineering 675 and 676	6
Numerical methods: Computer Science 410 and 322	8
Information systems: Computer Science 613 and 635	8

Other sequences are possible and should be checked with the student's adviser.

These options, together with an appropriate choice of technical electives, enable a student to earn at least 12 credits in a technological field other than OR&IE. Through an appropriate choice of free electives also, as many as 18 credits can be earned in the secondary discipline.

Scholastic requirements for the field are a passing grade in every course, maintenance of at least a 2.0 average for those courses taken while enrolled in the school, and satisfactory progress toward the completion of the degree requirements. The student's performance is reviewed at the conclusion of each term.

Master of Engineering (OR&IE) Degree Program

This one-year professional degree program is application-oriented rather than research-oriented, and requires completion of a project. The course work centers on additional study of analytical techniques, with particular emphasis on engineering applications, especially in the design of new or improved man-machine systems, information systems, and control systems.

General admission and degree requirements are described in the introductory section under "College of Engineering." The M.Eng. (OR&IE) program is integrated with the undergraduate Field Program in Operations Research and Industrial Engineering, and students who apply during their senior year will generally be admitted. Also welcome are requests for admission from Cornell undergraduates in engineering programs other than OR&IE, or from qualified non-Cornellians. To ensure completion of the program in one calendar year, the entering student should have completed courses in probability theory and basic probabilistic models and in computer programming, and should have acquired some fundamental knowledge of economic concepts required for decision making.

The two parallel course programs leading to the M.Eng. (OR&IE) degree are outlined below.

I. For matriculants with preparation comparable to that provided by the undergraduate Field Program in Operations Research and Industrial Engineering:

<i>Fall term</i>	<i>Credits</i>
OR&IE 516, Mathematical Models — Development and Application	4
OR&IE 680, Digital Systems Simulation	4
OR&IE 893, Applied OR&IE Colloquium	1
OR&IE 599, Project	1
Depth elective	minimum of 3
Breadth elective	minimum of 3
<i>Spring term</i>	
OR&IE 551, Advanced Engineering Economic Analysis	4
OR&IE 894, Applied OR&IE Colloquium	1
OR&IE 599, Project	minimum of 4
Depth elective	minimum of 3
Breadth elective	minimum of 3

The electives specified above will normally be chosen from graduate courses offered by the School of Operations Research and Industrial Engineering. The depth elective will generally involve the continuation of study in one of the topics elected to satisfy one of the fourth-year sequence requirements. The breadth elective will generally be one of

these sequences available in the fourth year (see listing under "Bachelor of Science Degree Program") but not selected by the student for the undergraduate curriculum.

II. For matriculants from other major fields of engineering who fulfill the basic prerequisite requirements but do not qualify for Program I:

<i>Fall term</i>	<i>Credits</i>
OR&IE 370, Introduction to Statistical Theory with Engineering Applications	4
OR&IE 622, Operations Research I	3
OR&IE 516, Mathematical Models — Development and Application	4
OR&IE 893, Applied OR&IE Colloquium	1
OR&IE 599, Project	1
Professional elective	minimum of 3
<i>Spring term</i>	
OR&IE 383, Introduction to File Processing and Simulation	4
OR&IE 623, Operations Research II	3
OR&IE 551, Advanced Engineering Economic Analysis	4
OR&IE 894, Applied OR&IE Colloquium	1
OR&IE 599, Project	minimum of 4
Professional elective	minimum of 3

The M.Eng. (OR&IE) student fulfills the project requirement by working as part of a group of no more than four students on an operational systems problem that actually exists in some organization. Appropriate problems are suggested by various operating organizations such as manufacturing firms, retailing organizations, service organizations, government agencies, and educational institutions.

Cooperative Program with Business and Public Administration

The Master of Business Administration program is of interest to many engineers. Because modern management is concerned with the operations of production and service systems, much of the analytical methodology required to deal with operating decisions is the same as that used by systems engineers in designing the systems. Therefore, there are several subjects required in the M.B.A. program which OR&IE students take as undergraduates, and an agreement between the School of Operations Research and Industrial Engineering and the Graduate School of Business and Public Administration provides an opportunity for Cornell students to complete the M.B.A. program in one additional year at Cornell following completion of the M.Eng. degree requirements.

Essential aspects of this combined six-year B.S./M.Eng./M.B.A. program are:

- 1) that the OR&IE candidate have completed by course work, advanced standing, or exemption examinations, the core course work required for the M.B.A. degree, except for NBP 503, Business Policy, by the end of the fifth year;
- 2) that 30 credits, at most, of advanced standing will be awarded by the School of Business and Public Administration for work done before the start of the sixth year in the undergraduate B.S. program, in the M.Eng. program, and in Business and Public Administration;

- 3) that during the sixth year, over a period of two semesters, the candidate will earn 26 credits in elective courses approved by Business and Public Administration, plus 4 credits for NBP 503, Business Policy.

The candidate would qualify for the B.S. degree at the end of four years, the M.Eng. degree at the end of five years, and the M.B.A. degree at the end of six years.

Further details and application forms for this special program may be obtained from the office of the School of Operations Research and Industrial Engineering, Upson Hall.

Structural Engineering

See Civil and Environmental Engineering.

Theoretical and Applied Mechanics

Y. H. Pao, chairman; J. A. Burns, H. D. Conway, P. A. Dashner, E. W. Hart, P. J. Holmes, J. T. Jenkins, R. H. Lance, G. S. S. Ludford, F. C. Moon, S. Mukherjee, R. H. Rand, W. H. Sachse

Undergraduate Study

The Department of Theoretical and Applied Mechanics is responsible for courses in engineering mechanics and engineering mathematics, some of which are part of the underclass engineering curriculum in the Division of Basic Studies.

College Program in Engineering Science

Although no upperclass field program is offered by the Department of Theoretical and Applied Mechanics, a student may enroll in the College Program in Engineering Science, which is sponsored by the department. The College Program is described in the introductory section under "College of Engineering."

Master of Engineering (Engineering Mechanics) Degree Program

Students who are interested in advanced study in mechanics and who intend to emphasize engineering practice rather than teaching or research may apply for admission to the M.Eng. (Engineering Mechanics) degree program. General admission and degree requirements are described in the introductory section under "College of Engineering." Specific requirements for the M.Eng. (Engineering Mechanics) degree are:

- 1) Completion of a minimum of 3 credits of work on an individual project, either analytical or experimental, under the direction of a faculty member.
- 2) Satisfactory completion of 6 credits of 600-level courses in mathematics or applied mathematics.
- 3) Courses in or related to theoretical and applied mechanics, selected in consultation with the student's adviser from those offered at the graduate level, to bring the total course work to at least 30 credits.

Graduate School

Administration

Alison P. Casarett, Dean

Benjamin P. Bowser, Assistant Dean

Donald P. Hayes, Secretary of the Graduate Faculty

Graduate study at Cornell is pursued through the Graduate School, which administers the many graduate fields of study, and through the various graduate professional schools and colleges. (Programs leading to the degrees of Doctor of Law (J.D.), Doctor of Medicine (M.D.), Doctor of Veterinary Medicine (D.V.M.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), and Master of Professional Studies in Hospital and Health Services Administration (M.P.S.(H.H.S.A.)) are not administered by the Graduate School. Information on those programs can be obtained from the Law School, the Medical College (New York City), the College of Veterinary Medicine, and the Graduate School of Business and Public Administration, respectively.)

Graduate School

The graduate program at Cornell permits an unusual degree of accommodation to the needs and interests of the individual student. Degree requirements are kept to a minimum. There are no specific course or credit requirements for the advanced general degrees of Master of Arts, Master of Science, and Doctor of Philosophy but only such general requirements that best accomplish the aim of graduate study: a period of study in residence, the mastery of one subject, adequate acquaintance with allied subjects, oral examinations to establish competency for presentation of a thesis, and a satisfactory thesis. Certain advanced professional degree programs have specific course or credit requirements; these are announced by the faculty of the professional school or college in which the degrees are offered.

A close working relationship with faculty is essential to the graduate program at Cornell. Under the Special Committee system, the student is guided by and works with at least two or three faculty members, chosen by the student to represent his or her major and minor subjects. The major subject representative is the chairperson of the Special Committee and usually has the primary responsibility for directing the student's thesis research.

Students wishing to use the University's facilities for intensive specialized training only, and who do not wish to become degree candidates, may apply for admission as nondegree candidates.

Requirements for Admission

To be admitted to the Graduate School an applicant should

- 1) hold a baccalaureate degree granted by a faculty or university of recognized standing or have completed studies equivalent to those required for a baccalaureate degree at Cornell;
- 2) have adequate preparation for graduate study in the chosen field of instruction;
- 3) have fluent command of the English language;
- 4) present evidence of promise in advanced study and research; and

- 5) have a combined score of 1200 in the Aptitude Tests of the Graduate Record Examinations for those fields which require the GRE.

Students from United States colleges and universities should be in the top third of their graduating class.

Before admission can be final, all applicants whose native language is not English must provide proof of competency in the English language. Acceptable proof could be (1) a degree from a college or university in a country where the native language is English; or (2) two or more years of study in an undergraduate or graduate program in a country where the native language is English; or (3) a Test of English as a Foreign Language (TOEFL) score of 550 or higher. Information on times and places for the TOEFL examination and an application form may be obtained from the Educational Testing Service, Princeton, New Jersey 08540, U.S.A.

Applications for admission to the Graduate School may be submitted at any time throughout the year. Many fields, however, require that applicants for fall admission submit their completed applications by January 15.

Applicants who are simultaneously applying for Cornell Graduate School Fellowship consideration must submit their completed applications and supporting credentials by January 15.

Inquiries regarding admission and fellowships should be addressed to the Dean of the Graduate School, Cornell University, Sage Graduate Center, Ithaca, New York 14853.

Information concerning admission requirements and courses of study for professional degrees may be obtained from the several schools and colleges which administer them.

Inquiries regarding facilities for advanced study and research in a given field, special requirements for such study and research, and opportunities for teaching and research assistantships should be addressed to the graduate faculty representative in the particular field.

For further information see the *Announcement of the Graduate School*, which may be obtained from the Sage Graduate Center at the address above.

School of Hotel Administration

Administration

Robert A. Beck, Dean

Normand L. Peckenpaugh, Director of Administration, Finance, and Operations

Paul Beals, Acting Executive Editor, *Cornell Hotel and Restaurant Administration Quarterly*

Raymond B. Cooke, Registrar

Stanley W. Davis, Director of Master of Professional Studies Program

Cheryl S. Farrell, Director of Admissions

Harry R. Keller, Director of Alumni Affairs

Malcolm A. Noden, Director of Financial Aid

John F. Tewey, Director of Placement

Degree Program

	Degree	HEGIS Code
Hotel and Restaurant Administration	B.S.	0508

Facilities

Statler Hall is a unique educational building designed expressly to meet the needs of the faculty and students of the School of Hotel Administration. The building has three parts: a classroom section, a practice inn, and an auditorium with full stage facilities. The five-story classroom section is supplemented by office, classroom, and laboratory space in the Alice Statler Auditorium wing. For instruction and research, these two sections provide lecture rooms, auditoriums, laboratories, and offices.

The Howard B. Meek Library provides an extensive collection of publications on hotel and restaurant operation and related subjects. The library has received many gifts of display materials and personal collections — among them the 1,600 books of the Herndon Collection, which includes many rare items.

Statler Inn, the school's practice laboratory, contains fifty-two guest rooms, including two suites, a fully equipped front office, and lounge areas. The Inn also has a variety of restaurants seating a thousand people: a formal dining room for 200, five private dining rooms for 8 to 100, two self-service restaurants for 150 and 200, a cocktail lounge, and a ballroom for 400.

The Inn's facilities provide a realistic laboratory for student instruction in operational procedures and managerial responsibilities for the hospitality industry. The school offers its students both theoretical and practical instruction through the use of Statler Inn.

Curriculum

The School of Hotel Administration offers training in the numerous disciplines required for modern management, including accounting, finance, marketing, operations, and human resources development. The school's graduates hold executive positions in a variety of industries, but are especially well represented in the management of hospitality-related enterprises, including the lodging, food service, and travel industries.

Students are encouraged to pursue a broad range of courses, including those in the humanities, as preparation for assuming their places in the business community. Included in the basic curriculum are courses in financial management, food and beverage operations, administration, and physical plant management. Students receive firsthand training through the operation of the Statler Inn.

To satisfy degree requirements, every undergraduate enrolled in the School of Hotel Administration must complete a minimum of two summer periods of ten weeks each or their equivalent of full-time, supervised employment and file acceptable reports for each work period.

The basic program leading to the degree in hotel administration, as set forth below, can be further enriched with a broad selection of elective courses offered by the school and elsewhere in the University. For instance, the student wishing to specialize in financial management, in food or beverage management, or any other area will find an extensive list of elective courses offered within the school and a suggested list of courses offered by other University divisions in *Cornell University: Description of Courses*.

The school's programs for advanced degrees include those of Master of Professional Studies, Master of Science, and Doctor of Philosophy. For more complete information about undergraduate program requirements, see the *Announcement of the School of Hotel Administration*. For further information on graduate degree programs, the reader should consult the *Announcement of the Graduate School* or contact Professor Davis, Director of the Master of Professional Studies Program.

Requirements for Graduation

Regularly enrolled students in the School of Hotel Administration are candidates for the degree of Bachelor of Science. The requirements follow:

- 1) Completion of eight terms in residence.*
- 2) Completion, with a minimum average of 2.0, of 122 required and elective credits, as set forth in the table below.
- 3) Completion of two units of practice credit before beginning the last term of residence, as defined below.
- 4) Completion of the University physical education requirement during the first two terms of residence.
- 5) Attainment of a grade-point average of at least 2.0 in the final semester.

Suggested course programs also appear on the following pages. The required courses specifically indicated account for 82 of the total of 122 credits. From the hotel electives, some combination of courses totaling at least 16 credits is to be taken. The remaining 24 credits may be earned in courses chosen at will from the offerings of any college of the University provided only that the customary requirements for admission to the courses chosen are met.

*Students transferring from other colleges and universities may be allowed appropriate credit against the residence requirements at the time of admission. In addition, in individual exceptional cases, the faculty may elect to modify the residence requirement.

Students in the School of Hotel Administration who plan to attend summer school at Cornell or elsewhere or who propose to attend any other university, with the expectation that the credit earned may be counted toward the Cornell degree in hotel administration, must obtain the approval of the school in advance. Without advance approval, such credit will not count toward the degree.

Credit earned in the courses in military science, aerospace studies, or naval science may be counted in the 24 credit group of free electives.

All students are required by the University to take two courses in physical education, but no credit toward the academic degree is allowed for these courses.

Grading System

Letter grades ranging from A+ to F are given to indicate academic performance in each course. These letter grades are assigned a numerical weight for each term average as follows: A equivalent to 4.0; B to 3.0; C to 2.0; D to 1.0; F to 0.0. For good standing, the student should maintain a minimum average of 2.0. In order to graduate, a cumulative average of 2.0 and a final term average of 2.0 are required as minimums. Of the free elective courses for which a student may be enrolled in a given term, a maximum of 4 credits may be on a "satisfactory-unsatisfactory" basis. This provision is exclusive of any hotel administration courses offered only on an S-U basis such as H Adm 101 and 102.

Students whose term average is at least 3.3 and composed of at least 12 credits of letter grades, with no unsatisfactory or incomplete grades, are honored by being placed on the Dean's List.

Practice Requirement

As part of degree requirements, each undergraduate enrolled in the School of Hotel Administration must complete a minimum of two summer periods of ten weeks each of full-time, supervised employment and file acceptable reports for each work period.† This requirement may also be satisfied by completing one such summer work period and sufficient part-time work to equal ten full-time work weeks. Again, acceptable reports must be filed. Students entering the school who have had extensive work experience may satisfy one-half of the work experience requirement if they make application for approval to the Practice Credit Committee at the time of matriculation and submit an acceptable report during the first term following matriculation by the stated deadline. Students are not permitted to register for the final term of residence until they have satisfied the practice requirement in full.

The requirement has a number of objectives. Students can test their interest in work in the field. They can learn by experience the points of view of the employee and by observation the duties of fellow workers in related jobs, in superior and inferior posts. With thought and imagination they can reflect upon and learn something of the problems of management and their solution. Upon returning to the classroom, students can draw upon this experience to illustrate and to understand the ideas developed by the instructor. After graduation, they can rest their application

†As set forth in the *Practice Instruction Handbook*, supplied on request to the School of Hotel Administration.

for permanent employment in part upon the practice experience record and in many cases are assisted by contacts established during the practice period.

Since cadets in the Army and Air Force Reserve Officers Training Corps are expected to spend six weeks in camp during the summer before their senior year, it is especially desirable that hotel students who plan to join the Corps and to elect the advanced courses in military science make every effort to expedite their practice work early. Similarly, students enrolled in the Naval Reserve Officers Training Corps who must make summer cruises should anticipate the practice requirements as much as possible.

Although the practice requirement is an essential part of the student's program, the school does not guarantee summer positions. Through the school's numerous contacts with the hotel and restaurant industry a considerable number of openings are available for students of high promise. Other students are assisted in finding work, and ordinarily American students find jobs quite readily. Jobs suitable for foreign students are considerably less numerous. Consequently, the foreign student must expect to have more difficulty in getting a position. The school will give what assistance it can to foreign students, but it cannot guarantee placement or assume responsibility for it.

Many of the major hotel and restaurant organizations provide special opportunities for Cornell students to gain wide-ranging experience through unique apprenticeship arrangements.

A limited number of upperclass students are encouraged to enroll in work-study programs which entail six to eight months of on-the-job managerial instruction and experience. For the details of these programs, see Directed Study, on the following pages.

Course Requirements for Graduation

<i>Specifically required courses</i>	<i>Credits</i>
Administrative and general management: Hotel Administration 101	1
Human resources management: Hotel Administration 111, 211	6
Accounting and financial management: Hotel Administration 121, 122, 125, 221, 222	15
Food and beverage management: Hotel Administration 131, 132, 231, 232, 331	12
Law: Hotel Administration 341, 344	6
Properties management: Hotel Administration 251, 351, 352, 451	12
Communication: Hotel Administration 165, 265	6
Science and technology: Hotel Administration 171, 172, 173, 174	12
Economics, marketing, and tourism: Hotel Administration 281, 282	6
Liberal arts elective	6
Total specifically required hours	82
<i>Hotel electives</i>	16
<i>Free electives</i>	24
Total credits required for graduation	122

Undergraduate Program of Study

This typical arrangement of courses, year by year, is offered for illustration. The courses mentioned are described in detail in *Cornell University: Description of Courses*.

The curriculum of the School of Hotel Administration is currently being revised and expanded in some areas. In some cases, the numbers of old and new courses overlap. Students are reminded that the most accurate information regarding course offerings during any given semester may be found in the supplement issued for that semester by the school's records office.

Note: A new required sequence in food and beverage management becomes effective in fall 1979; this sequence is represented in the listings below. Students who matriculated prior to fall 1979 should refer questions about requirements in this department to the registrar of the School of Hotel Administration. The old sequence specifies H Adm 131, Fundamentals of Managing Service (3 credits), and H Adm 132, Commercial Food Service Preparation (3 credits), for the freshman year, and H Adm 231, Meat Science and Management (which will continue to be offered, for 3 credits), and H Adm 232, Operational Food Production Systems (3 credits), for the sophomore year.

Freshman Year

Typically, a freshman schedule will consist of 16 to 18 credits each semester, selected from the following courses.

<i>Specifically required courses</i>	<i>Credits</i>
H Adm 165, Report Writing	3
H Adm 111, Introductory Psychology	3
H Adm 101, Orientation	1
H Adm 174, Information Systems I	3
H Adm 121, Financial Accounting	3
H Adm 122, Hospitality Accounting Systems	3
H Adm 125, Finance	3
H Adm 131, Introduction to Food and Beverage Management	2
H Adm 132, Food Production Techniques	1
H Adm 171-172, Food Chemistry I and II	7
H Adm 173, Sanitation in the Food Service Operation	2
	31

<i>Suggested electives*</i>	<i>Credits</i>
H Adm 102, Lectures in Hotel Management	1
H Adm 161, Typewriting	2

*Sixteen credits of hotel electives are to be taken.

Sophomore Year

<i>Specifically required courses</i>	<i>Credits</i>
H Adm 211, Management of Human Resources	3
H Adm 221, Intermediate Accounting	3
H Adm 222, Managerial Accounting in the Hospitality Industry	3
H Adm 231, Meat Science and Management	3
H Adm 232, Institutional Food Production Systems	3
H Adm 281, Macroeconomics	3
H Adm 282, Microeconomics	3
H Adm 251, Property Management Graphics	3
H Adm 265, Effective Communication	3
H Adm 331, Restaurant and Banquet Food Production Systems	3
	30

<i>Suggested electives</i>	<i>Credits</i>
H Adm 274, Hotel Computing Applications	3
H Adm 223, Front Office Machine Accounting	1
H Adm 224, Food and Beverage Control	2
H Adm 283, Principles of Marketing	2
H Adm 261, Report Typing	2

Junior Year

<i>Specifically required courses</i>	<i>Credits</i>
H Adm 341, Law of Business	3
H Adm 344, Law of Innkeeping	3
H Adm 351–352, Mechanical and Electrical Systems I and II	6

12

Suggested electives

	<i>Credits</i>
H Adm 205, Resort and Condominium Management	3
H Adm 305, Rooms Division Management—Housekeeping	2
H Adm 304, Rooms Division Management—Front Office and Reservations	2
H Adm 216, Marketing Management	3
H Adm 382, Psychology in Business and Industry	3
H Adm 315, Seminar in Organizational Behavior and Administration	3
H Adm 381, Advertising and Public Relations	2
H Adm 483, Psychology of Advertising	2
H Adm 322, Investment Management	2
H Adm 323, Financial Analysis and Planning	3
H Adm 326, Introduction to Statistical Analysis and Inference	3
H Adm 331, Seminar in Convenience Foods	2
H Adm 204, Franchising in the Hospitality Industry	2
H Adm 284, Tourism	3
H Adm 342, Law of Business II	3
H Adm 306, General Survey of Real Estate	2
H Adm 301, Development of a Hospitality Property	3
H Adm 353, Introductory Food Facilities Engineering	3
Business and Public Administration NBA 505, Auditing	3

Senior Year

<i>Specifically required course</i>	<i>Credits</i>
H Adm 451, Physical Plant Planning and Construction	3

Suggested electives

	<i>Credits</i>
H Adm 382, Cases in Hospitality Marketing	2
H Adm 311, Union-Management Relations in Private Industry	3
H Adm 313, Development of Training Programs	3
H Adm 401, Principles of Management	2
H Adm 482, Hotel Sales	2
H Adm 406, Integrated Case Studies in the Hospitality Industry	2
H Adm 601–602, Work-Study Program	†
H Adm 421, Internal Control in Hotels	2
H Adm 610, Undergraduate Independent Research in Human Resources Management	†
H Adm 620, Undergraduate Independent Research in Financial Management	†
H Adm 234, Hospital Food Service Administration	2
H Adm 333, Restaurant and Beverage Management	3
H Adm 338, Purchasing	2
H Adm 630, Undergraduate Independent Research in Food and Beverage Management	†
H Adm 640, Undergraduate Independent Research in Law	†
H Adm 354, Food Facilities Equipment, Layout, and Design	3

H Adm 452, Seminar in Interior Design	3
H Adm 453, Seminar in Environmental Control	3
H Adm 454, Seminar in Hotel Planning	4
H Adm 455, Seminar in Restaurant Planning	3
H Adm 456, Seminar in Destination Resort Planning	3
H Adm 650, Undergraduate Independent Research in Properties Management	†
H Adm 364, Managerial Letter Writing	2
H Adm 660, Undergraduate Independent Research in Managerial Communications	†
H Adm 670, Undergraduate Independent Research in Science and Technology	†
H Adm 680, Undergraduate Independent Research in Economics, Marketing, and Tourism	†

Programs in Special Areas

While completing the required courses leading to the bachelor's degree, undergraduates in the school have the option of concentrating their studies in a major area of instruction. These include administration, financial management, food and beverage management, hotel and motel planning and design, management, marketing, and food science, among others.

When the student selects one of these major fields of concentration, he or she should consult the coordinator of instruction in that area during the sophomore year to plan the sequence of elective courses and directed studies that will best fit his or her program.

A list of elective courses offered in the school's special areas of instruction is provided below.

Undergraduate Elective Courses in Hotel Administration

<i>Administrative and General Management</i>	<i>Credits</i>
H Adm 102, Lectures in Hotel Management	1
H Adm 201, Principles of Management	3
H Adm 203, Club Management	2
H Adm 204, Franchising in the Hospitality Industry	2
H Adm 205, Resort and Condominium Management	3
H Adm 206, General Insurance	3
H Adm 301, Development of a Hospitality Property	3
H Adm 302, Seminar in Hotel Operations	2
H Adm 303, Club Management Seminar	1
H Adm 304, Rooms Division Management—Front Office and Reservations	2
H Adm 305, Rooms Division Management—Housekeeping	2
H Adm 306, General Survey of Real Estate	2
H Adm 307, Hotel Security and Crime Prevention	2
H Adm 401, Seminar in Management Principles	2
H Adm 402, Hotel Management Seminar	1
H Adm 403, The Small Business	3
H Adm 404, Management Organization of the Small Business	3
H Adm 405, Seminar in Real Estate	2
H Adm 406, Integrated Case Studies in the Hospitality Industry	3
H Adm 409, T.A. Training in Administration and General Studies	1–3

†With the exception of the Work-Study Program, only the first three credits of independent study in any area may be counted toward hotel electives. The rest will be credited against free electives.

H Adm 600, Undergraduate Independent Research in Administration and General Studies	1-3
H Adm 601, Work-Study Program I	6
H Adm 602, Work-Study Program II	6

<i>Human Resources Management</i>	<i>Credits</i>
H Adm 311, Union-Management Relations	3
H Adm 313, Development of Training Programs	3
H Adm 314, Psychology in Business and Industry	3
H Adm 315, Seminar in Organizational Behavior and Administration	3
H Adm 416, Special Studies in the Management of Human Resources	3
H Adm 419, T. A. Training in Human Resources Management	1-3
H Adm 610, Undergraduate Independent Research in Human Resources Management	1-3

<i>Accounting and Financial Management</i>	<i>Credits</i>
H Adm 223, Front Office Machine Accounting	1
H Adm 224, Food and Beverage Control	2
H Adm 321, Hotel Management Contracts	1
H Adm 322, Investment Management	2
H Adm 323, Financial Analysis and Planning	3
H Adm 324, Financial Charts and Graphs	1
H Adm 326, Introduction to Statistical Analysis and Inference	3
H Adm 328, Cost Accounting	3
H Adm 421, Internal Control in Hotels	2
H Adm 422, Personal and Corporate Taxation	2
H Adm 429, T. A. Training in Accounting and Financial Management	1-3
H Adm 620, Undergraduate Independent Research in Accounting and Financial Management	1-3

<i>Food and Beverage Management</i>	<i>Credits</i>
H Adm 233, Specialty Food Preparation	3
H Adm 234, Hospital Food Service Administration	2
H Adm 331, Seminar in Convenience Foods	2
H Adm 333, Corporate Restaurant Management	3
H Adm 334, Beverage and Entertainment Management	4
H Adm 337, Survey of Beverages	2
H Adm 338, Purchasing	2
H Adm 339, Buffet Planning and Preparation	3
H Adm 439, T.A. Training in Food and Beverage Management	1-3
H Adm 630, Undergraduate Independent Research in Food and Beverage Management	1-3

<i>Law</i>	<i>Credits</i>
H Adm 247, Law and the Woman Employee	3
H Adm 342, Law of Business II	3
H Adm 347, Law of Real Estate I	2
H Adm 348, Law of Real Estate II	2
H Adm 449, T. A. Training in Law	1-3
H Adm 640, Undergraduate Independent Research in Law	1-3

<i>Properties Management</i>	<i>Credits</i>
H Adm 255, Principles of Design	3
H Adm 353, Introductory Food Facilities Engineering	3
H Adm 354, Food Facilities Engineering Layout and Design	3
H Adm 452, Seminar in Interior Design	3
H Adm 453, Seminar in Environmental Control	3
H Adm 454, Seminar in Hotel Planning	3

H Adm 455, Seminar in Restaurant Planning	3
H Adm 459, T. A. Training in Properties Management	1-3
H Adm 650, Undergraduate Independent Research in Properties Management	1-3

<i>Communication</i>	<i>Credits</i>
H Adm 161, Typewriting	2
H Adm 261, Report Typing	2
H Adm 262, Typewriting and Business Procedures	3
H Adm 263, Shorthand Theory	3
H Adm 268, Written Communication	1
H Adm 364, Managerial Letter Writing and Dictation	2
H Adm 469, T. A. Training in Communication	1-3
H Adm 660, Undergraduate Independent Research in Communication	1-3

<i>Science and Technology</i>	<i>Credits</i>
H Adm 274, Hotel Computer Applications	3
H Adm 374, Advanced Programming and Systems Design	3
H Adm 479, T. A. Training in Science and Technology	1-3
H Adm 670, Undergraduate Independent Research in Science and Technology	1-3

<i>Economics, Marketing, and Tourism</i>	<i>Credits</i>
H Adm 283, Principles of Marketing	2
H Adm 284, Tourism	3
H Adm 381, Advertising and Public Relations	2
H Adm 382, Cases in Hospitality Marketing	2
H Adm 383, Seminar in Selected Topics of Hospitality Marketing	2
H Adm 481, Seminar in Advertising and Public Relations	2
H Adm 482, Hotel Sales	2
H Adm 482, Psychology of Advertising	3
H Adm 489, T. A. Training in Economics, Marketing, and Tourism	1-3
H Adm 600, Undergraduate Independent Research in Economics, Marketing, and Tourism	1-3

Foreign Languages

Mastery of a foreign language is particularly desirable for students who are planning careers in the hotel or restaurant industries. Foreign language study at Cornell is characterized by small classes and emphasis on the spoken language. Students supplement their course work with study in a well-equipped language laboratory.

The first 6 credits of a modern foreign language taken at Cornell University may be counted as hotel electives rather than as free electives. For further information on foreign language courses offered at Cornell, the student should consult *Cornell University: Description of Courses*. Information about placement in language courses may be found in the section "Advanced Placement of Freshmen" and in "Modern Languages, Literatures, and Linguistics" in the College of Arts and Sciences program description.

Graduate Curriculum

Candidates for the M.S. or Ph.D. degree should refer to the admissions and degree requirements set forth in the *Announcement of the Graduate School*. The student's program is developed with the aid and direction of a Special Committee, chosen by the student from members of the graduate faculty, and this committee also approves the thesis.

Candidates for the Master of Professional Studies degree pursue one of three tracks in their graduate studies, according to the areas previously studied. Students whose undergraduate degrees are in an area other than hotel administration follow Track I, for which the required two-year program is set forth below.

The curricula for M.P.S. Tracks II and III are specifically designed for each student, based on previous experience and career goals. Students qualifying for Track II (those who hold B.S. degrees in hotel administration from an institution other than Cornell) are expected to have taken the courses required for Track I as part of their undergraduate work.

If they have not done so, these courses should be part of their graduate program. A minimum of three residence units is required to complete Track II. Track III is for students who hold a B.S. in hotel administration from Cornell, and normally requires only one year to complete.

Students entering Tracks II and III should meet with the graduate faculty representative soon after their arrival to select a graduate adviser.

Cornell University: Description of Courses includes courses planned for graduate study from which the candidate and a graduate adviser can develop a concentration of studies in one or more areas of special interest.

Each student also writes an investigative report, under the guidance of an adviser, to meet requirements for the M.P.S. degree. This report should preferably deal with the student's area of concentration.

Required Program for M.P.S. Track I Students

<i>Specifically required courses</i>	<i>Credits</i>
H Adm 173, Sanitation in the Food Service Operation	2
H Adm 722, Graduate Managerial Accounting in the Hospitality Industry	3
H Adm 744, Law of Innkeeping	3
H Adm 781, Seminar in Marketing	3
H Adm 774, Computers and Hotel Computing Applications	3
H Adm 723, Graduate Corporate Finance	4
H Adm 731, Graduate Food and Beverage Management	3
H Adm 732, Graduate Operational Food Production Systems	3
H Adm 751, Graduate Study in Project Development and Construction	3
H Adm 752, Graduate Study in Electrical and Mechanical Systems	3
H Adm 771, Graduate Food Chemistry	4
H Adm 800, Monograph Research	3
H Adm 801, Monograph	2
<i>Total, specifically required courses</i>	39
<i>Elective courses</i>	25
Total credits required for M.P.S. Track I students	64

Directed Study

Independent Research Students may conduct independent research projects in any academic department of the school under the direction of a faculty member. Credit is arranged on an individual basis. Only the first 3 credits of directed study may be credited against hotel electives during the undergraduate years. Additional directed study is credited against free electives, with the exception of the work-study program of 12 credits. To enroll in an independent research project, students must obtain written permission from the school office prior to course registration.

Work-Study Program This program is open only to upperclass and graduate students. Students accepted into the program earn 12 credits. Students enrolled in this program have an opportunity to combine managerial instruction with on-the-job management experience. Application for admission should be made one semester in advance. Instruction is provided by the school's faculty and by the organization participating in the work-study arrangements. Work-study programs are currently in operation at several locations, including the Statler Inn on the University campus. Students receive both academic credit and practice credit, and appropriate financial remuneration for the period of the program. The student is charged three-fourths of full tuition. Inquiries regarding the program should be addressed to Mr. Normand L. Peckenpaugh, Work-Study Coordinator, Statler Hall.

Faculty

Robert A. Beck, Ph.D., E. M. Statler Professor
 Raymond M. Cantwell, M.S., Associate Professor
 Robert M. Chase, M.B.A., Associate Professor
 Vance A. Christian, M.S., Professor
 John J. Clark, Jr., Ph.D., Associate Professor
 Antoinette L. Colucci, M.S., Assistant Professor
 Richard A. Compton, M.S., Senior Lecturer
 Betty B. David, Teaching Support Staff
 Stanley W. Davis, Ph.D., Professor
 Donal A. Dermody, M.S., Associate Professor
 Regina M. Dioguardi, B.S., Lecturer
 David C. Dunn, Ph.D., Associate Professor
 Joseph F. Durocher, M.P.S., Lecturer
 James J. Eyster, Ph.D., Associate Professor
 W. Robert Farnsworth, M.A., Lecturer
 Dennis H. Ferguson, B.S., Research Associate
 Dora G. Flash, A.B., Lecturer
 Paul L. Gaurnier, M.S., Professor
 A. Neal Geller, Ph.D., Associate Professor
 H. Victor Grohmann, B.S., H. B. Meek Visiting Professor
 Willa F. Grunes, Ph.D., Associate Professor
 Francine A. Herman, M.S., Associate Professor
 Daphne A. Jameson, Ph.D., Assistant Professor
 William H. Kaven, Ph.D., Associate Professor
 Marian M. Kreithen, B.A., Lecturer
 Keith McNeill, B.S., Lecturer
 Richard G. Moore, M.E.E., M.B.A., Senior Research Associate

Stephen A. Mutkoski, Ph.D., Assistant Professor
 Malcolm A. Noden, Research Associate
 Richard H. Penner, M.S.Arch., Associate Professor
 Peter Rainsford, Ph.D., Associate Professor
 Michael H. Redlin, Ph.D., Assistant Professor
 Gerald T. Regan, A.O.S., Chef-Instructor
 Bonnie S. Richmond, M.S., Lecturer
 John C. Ross, B.S., Lecturer
 David Sher, M.B.A., Associate Professor
 John E. H. Sherry, J.D., Associate Professor
 John H. Sherry, LL.B., Professor
 Mary A. Tabacchi, Ph.D., Assistant Professor
 John F. Tewey, M.S., Lecturer
 Thomas R. Turner, B.S., Visiting Lecturer
 James C. White, Ph.D., Professor
 Donald E. Whitehead, B.S., Lecturer
 Peter C. Yesawich, Ph.D., Visiting Lecturer

New York State College of Human Ecology

Administration

Jerome M. Ziegler, Dean
 Bertha A. Lewis, Associate Dean for Research and Graduate Education; Assistant Director of the Cornell University Agricultural Experiment Station
 Lucinda A. Noble, Associate Dean; Director of Cooperative Extension
 William H. Gauger, Assistant Dean for Student Services
 Nancy Meltzer, Assistant Dean for Administrative Services
 Robert Babcock, Acting Director, Placement Office
 Clarence H. Reed, Director of Special Educational Projects
 Timothy K. Stanton, Director of Field Study Office
 Joyce McAllister, Registrar

Facilities

The College of Human Ecology is housed in Martha Van Rensselaer Hall. The Division of Nutritional Sciences, an intercollege division supported jointly by this college and the College of Agriculture and Life Sciences, has space in Savage Hall and in Van Rensselaer Hall.

The physical plant includes administrative offices, faculty offices, classrooms, auditoriums, and lecture halls; wet chemistry and biochemistry laboratories for nutrition, food science, and textile science; household equipment laboratories; experimental food laboratories; design studios; woodworking shops; a children's creative art laboratory; experimental observation rooms with one-way

vision screens and sound-recording equipment; educational television studios and a printing and reproduction facility. Also included are learning resource centers (human development and family studies, home economics education, interior and product design, nutritional sciences), a historical costume collection, a human metabolic research unit, research animal facility, cold rooms, a constant temperature and humidity laboratory, an experimental nursery school, and a home management apartment.

Specialized equipment for teaching and research includes biochemical and chemical instruments for spectroscopy, chromatography, radioisotope analysis, electrophoresis, microscopy and ultracentrifugation, physical testing equipment such as an Instron, and cameras, videotape, and sound-recording equipment.

Degree Programs

	Degree	HEGIS Code
Consumer Economics and Housing	B.S.	1304
Design and Environmental Analysis	B.S.	0201
Human Development and Family Studies	B.S.	1305
Human Service Studies	B.S.	2101
Nutritional Sciences	B.S.	1306
Social Planning and Public Policy	B.S.	2199

Consumer Economics and Housing

Increasing concern with the welfare of the consumer in society is evident at all levels of government and in private industry. The Department of Consumer Economics and Housing (CEH) offers students an opportunity to focus on social and economic policies affecting individuals and families. The program encourages an understanding of economics and sociology, particularly as they relate to the consumption of both privately and publicly supplied goods and services. Students who complete their undergraduate work in this department are well prepared for a variety of positions within a developing field of consumer-related work.

Interdepartmental Major in Social Planning and Public Policy

The Department of Consumer Economics and Housing participates in the Interdepartmental Major in Social Planning and Public Policy with the Department of Human Service Studies. In this major the students acquire knowledge and skills to assess local and regional needs and to develop, implement, and evaluate policies and plans for meeting those needs, and learn to work as professionals in state and local agencies. The major is described following these departmental descriptions.

Options

Two options are offered to undergraduates majoring in the department: consumer economics or housing. Either provides excellent preparation for employment in government, business, and continuing education programs such as Cooperative Extension. The major also provides an excellent undergraduate foundation for further studies in law, economics, and business.

In addition to courses to be taken within the department, each option presents alternatives for the thorough development of a related interest.

Option I: Consumer Economics is concerned with the economic behavior and welfare of consumers in the private and public sectors of the economy: how consumers allocate their scarce resources, especially time and money. This option requires an understanding of the market economy, of consumers' rights and responsibilities and of household production, consumption, and management. Graduates may choose to work in government agencies providing consumer services, in business and industry, or in consumer-related community programs.

Option II: Housing Housing, a major societal problem, is studied through an interdisciplinary approach that includes sociology and economics. The sociological approach considers the interplay between housing demand and population trends, analyzing such contemporary issues as residential segregation and population mobility. The economics of housing familiarizes the student with the operations of the housing market, including supply and demand, production and consumption, and finance. The role of federal, state, and local governments in designing and implementing housing policies is scrutinized. Careful analysis and evaluation of housing research are stressed.

Academic Advising

The CEH major is flexible and allows individual program planning. All students majoring in consumer economics and housing are assigned a faculty adviser by the advising coordinator. The earlier a student decides to major in the department, the greater the opportunity to develop a program that will meet individual educational or career goals. Transfer students are urged to discuss their plans with a faculty adviser as soon as possible.

All faculty members serve as advisers. If a student wishes, he or she may select an adviser and, work loads permitting, the choice will be approved. Talking with the advising coordinator in the department can help match the student's needs with the special interests of a faculty member. Students are free to change advisers at any time. An appointment to talk with either an adviser or the advising coordinator, Jean Robinson, may be made directly with the faculty member or through the secretary in 116 Martha Van Rensselaer Hall.

Design and Environmental Analysis

The Department of Design and Environmental Analysis (DEA) is concerned with creating, selecting, and changing the quality of our near environment. The near environment begins with the individual and encompasses the areas we occupy as we move about in our work and leisure activities, at home and away from home. The program of the department emphasizes the interaction between environments and people: the needs of individuals, families, and other groups as they affect and are affected by the space, objects, and materials around them.

Options are based on subject matter in:

- 1) *Design* — an introduction to visual language including the elements and principles of two- and three-dimensional design, color theory, and drawing;
- 2) *The physical sciences* — the chemical, physical, and structural properties of materials such as textiles, wood, and plastics; and
- 3) *The social sciences* — psychological, sociological, and managerial analyses of our relationship to the physical environment.

Diverse faculty backgrounds and teaching approaches lead to multidisciplinary problem solving and development of creative abilities, aesthetic judgment, and analytical thinking of students.

Excellent laboratory and studio facilities permit exploration of textiles and other materials and design concepts through analytical and creative problem-solving techniques. Examples of student projects, faculty work, and items from the Cornell Costume Collection are frequently on display in the department's galleries and exhibit case. The Costume Collection and the Interior and Product Design Resource Center are available for student use.

Options

The department offers undergraduate education in four professional areas: interior and product design, apparel design, textiles, and human-environment relations.

To take full advantage of the course sequences, it is important to select an option as early as possible. This is particularly true in the design options which specify more credits in the major fields than do the other two options. Transfer students in the two design options or the textiles option may need one or two extra semesters to complete the program.

Option Ia: Interior and Product Design prepares students who are interested in the design of objects and the spaces in which they are used. The sequence of courses is planned to help develop professional design skills.

Many careers are available in the design field, particularly in the areas of interior space planning, consumer product design, and aspects of housing design and technology.

Option Ib: Apparel Design focuses on both aesthetic and functional considerations in the design of body coverings. The program emphasizes a problem approach that enables the student to integrate knowledge of design, human-environment relations, and textiles to the apparel design process. Some students combine this option with Option II.

Graduates have found challenging employment in the textile and apparel industries, in independent and government-sponsored research projects, and in community organizations.

Option II: Textiles allows students to explore the chemical and physical structures and properties of textiles, textile products, and other materials and consider the requirements for using these materials in the near environment. Supporting courses are found in physical sciences, design, human and social factors, and consumer economics and housing. Some students combine this option with Option Ib.

Careers are available in the fiber and textile industries, government, and education. Recent graduates are active in new product development and evaluation, research, technical marketing services, consumer information, and product safety.

Option III: Human-Environment Relations focuses on human interactions with the environment. Students analyze the psychological and sociological factors of existing and proposed environments as they seek to understand the interaction between people and their activity settings and to establish criteria for improving the quality of physical solutions to meet human needs.

Graduates work with designers, architects, and interior space planners. Careers are found also in government agencies, rehabilitation, housing evaluation, and consumer information. Graduate study is highly recommended, especially for teaching and research.

Academic Advising

All DEA majors are matched with a faculty adviser during their first semester with the help of the executive staff assistant, Teresa Wagner. Consultation with advisers or the undergraduate advising coordinator, Susan Watkins, about future goals, department requirements, sequences of courses, and electives inside or outside the college to meet special needs helps students develop their programs. Students in Options Ia and Ib, especially, must begin early to plan and collect materials for a portfolio of their work, which is necessary for many positions and for application to graduate schools. Faculty advisers can recommend what material should be included.

Human Development and Family Studies

The programs of the Department of Human Development and Family Studies (HDFS) combine a broad theoretical background in human development and family studies with specialization in a chosen area of interest. Courses encourage students to participate and apply their knowledge. The size and combination of the programs of instruction and public service and research activities provide diverse opportunities for students to prepare for careers or for graduate study. University teaching and research, social work, medicine, law, and clinical psychology require graduate education. Positions such as research technicians, program assistants, personnel supervisors, youth counselors, and child care workers may be available to graduates with the bachelor's degree. The department does not offer programs leading to teaching certification at any level.

The Curriculum

During their first two years, students are expected to combine a variety of liberal arts courses with three HDFS core courses: HDFS 115, Human Development: Infancy and Childhood; HDFS 116, Human Development: Adolescence and Youth; and HDFS 150, The Family in Modern Society. This encourages diversity yet ensures a common base for upper level courses in the major. Courses within the department vary from lectures and discussions to research and independent study. All students are required to observe and participate in a laboratory or field setting.

A major takes at least one basic course in each of three areas: cognitive development, personality and social development, and family and society. Courses deal with language and learning; individual, social, personality, and cognitive development; the family in its traditional and contemporary forms; and settings for human development outside the home, particularly day care and nursery school environments. People are studied at all levels and stages of life, with emphasis on the years from infancy through adolescence.

The major requires a minimum of core courses common to all majors. Students have wide opportunity to develop concentrations by taking courses throughout the University. Courses which provide career preparation should be taken by students who plan to work immediately after graduation.

The Honors Program is designed to provide in-depth research experience for students interested in graduate school and to challenge students who enjoy and excel in research-oriented activities. Interested students should contact the director of the program during the second term of their sophomore year, although students may enter at a later date with special permission from the honors chairperson.

A grade point average of 3.5 is recommended for entry into the program, although promising students who lack the grade point average may also apply if they can otherwise demonstrate their potential for honors work. Honors students must take a course in experimental research design before their senior year, for example, HDFS 397, Experimental Child Psychology, or HDFS 398, Junior Honors Seminar.

Students spend their senior year working on a thesis under faculty supervision and should complete the project by the end of April. All thesis work *must* be completed by May when the student's oral examination is held. Students who successfully complete the requirements will graduate with high honors for grades of A or A- and honors for a grade of B. More information is available in the department chairperson's office, NG14 Martha Van Rensselaer Hall.

Academic Advising

Students majoring in HDFS are assigned a faculty adviser by the advising coordinator, Ann Dyckman, NG14 Martha Van Rensselaer Hall. Students are free to change their adviser as their own interests change and should see the coordinator when contemplating a change. *Consultation with a faculty adviser is strongly recommended.* Student advisers and special career programs provide additional help for students.

Human Service Studies

The curricula in the Department of Human Service Studies (HSS) prepare students for professional careers in human services. Graduates of the department may wish to enter a variety of professions, including teaching home economics, social work, adult health, and community activities. HSS graduates work in schools, social agencies, cooperative extension services, and community development agencies and serve children, youth, the elderly, and families. The range of career opportunities depends both on the option and on electives chosen to meet individual career objectives.

HSS is unique in that it integrates a broad spectrum of studies, offered by several departments and colleges, and focuses them for professional practice in the human services.

All HSS students take three core courses that together provide a base for understanding the community and community services, organizational behavior and group processes, program planning, and research analysis. Regardless of their specific professional goals, students acquire an understanding of the commonalities and differences of related professions and the ways they can collaborate to improve the human condition. Every student in the department is required to have a supervised field experience directly related to his or her career objectives.

Interdepartmental Major in Social Planning and Public Policy

The Department of Human Service Studies participates in the Interdepartmental Major in Social Planning and Public Policy with the Department of Consumer Economics and Housing. In this major the students acquire knowledge and skills to assess local and regional needs and to develop, implement, and evaluate policies and plans for meeting those needs, and learn to work as professionals in state and local agencies. The major is described following these departmental descriptions.

Options

Two options are available in the department: (1) community and family life education, and (2) social work.

Students who elect the option in community and family life education focus on the educator's role in a variety of organizational settings (schools, cooperative extension, social, and government agencies, and business) with learners of all ages. Students may choose to emphasize an area of adult and community education or the teaching of home economics in a school or a nonschool setting. Students who desire to teach home economics in schools (kindergarten through twelfth grade) select a sequence of courses that meet New York State certification requirements.

Students who pursue the accredited social work option are prepared for the entry-level jobs in social work and are eligible to apply for a year's advance standing in graduate schools of social work.

Option I: Community and Family Life Education

prepares participants to plan, implement, teach, and evaluate innovative educational programs in formal and informal settings. Students from this option may take positions in cooperative extension, schools, outreach programs (teen-age pregnancy centers, half-way houses, consumer and homemaking programs), local poverty programs, community centers, continuing education centers, and business and government agencies.

Course work combines a liberal education with professional preparation and integrates field-based learning to link theory with practice.

Building on basic courses taken early in the programs, students select an area of concentration based on their interests, background, and professional goals, that permits them to study the relationships between a particular area and individual, family, and community life. With careful planning students often are able to meet the requirements of a second major closely related to the area of concentration and thus widen their career choices.

Faculty advisers help students develop a plan for course work that may include courses from basic disciplines or other departments, tutorials, fieldwork, and research. Plans should be completed by spring course registration during the student's sophomore year.

Students who desire to teach home economics in schools select a sequence of courses that lead to a certificate of qualification for teaching kindergarten through twelfth grade in New York State and many other states. This certificate is exchanged for a provisional certificate when the student takes a home economics teaching position. Permanent certification requires two years of teaching experience and a master's degree. Students who wish to

qualify for certification in other states or in New York City should investigate the special requirements of each. Most can be met by making careful choices of electives. The current program will be modified and will be competency-based by 1980.

Students planning an emphasis on adult and community education do not need to meet home economics teacher certification requirements, although by careful planning this may be accomplished.

Option II: Social Work The undergraduate program in social work at Cornell has three major goals: to prepare students for positions in the field that do not require advanced degrees; to prepare students for graduate education in social work; and to contribute to the enrichment of a general college education by helping students understand social welfare needs, services, and issues.

The social work curriculum is based on the biological and social sciences, the humanities, and three core courses in the department, HSS 202, HSS 203, and HSS 292. These requirements generally are completed during freshman and sophomore years.

Introductory courses in social work HSS 370, Introduction to Social Welfare as a Social Institution and HSS 246, Ecological Determinants of Human Behavior, should be taken in the sophomore year as prerequisites for HSS 471–472, Social Work Practice, in the junior year. A grade of C+ or better in the introductory courses (HSS 246 and HSS 370) is required to continue in the option.

HSS 471–472, Social Work Practice, is a year-long methods course that includes fieldwork. Students are placed with agencies within a fifty-mile radius of Ithaca. Students spend Tuesdays and Thursdays in the field and Mondays and Wednesdays on campus in seminars. Students are expected to pay the costs of transportation but the department will reimburse part or all of the travel costs of placements outside the Ithaca area within the limits of its resources. A driver's license is highly desirable. Students must have permission of the instructor to register for HSS 471. Satisfactory work in the field placement and a grade of B– or better is required in HSS 471 for a student to continue with HSS 472.

Accreditation The social work program is accredited by the Council on Social Work Education. Students who complete all requirements are eligible to apply for advanced standing in graduate schools of social work, or they may seek employment as professional social workers.

Academic Advising

The curricula in HSS are demanding; each of the HSS options requires breadth and depth in several areas. The core courses (HSS 202, HSS 203, and HSS 292) must be taken in the freshman and sophomore years, and prerequisites for each of the options should be completed before the junior year, if possible. (Special provisions are made for junior transfers.) Each student must have a practicum supervised by HSS faculty that is tied directly to his or her professional preparation.

It is important for a student who is interested in majoring in human service studies to declare that major and select an option as early as possible. Once the major is declared, the departmental advising coordinator, Edythe Conway, assigns an adviser from the HSS faculty. A student who is

unsure about which option to pursue should talk with a faculty adviser. With judicious planning, opportunity to change options or the major can be built into the program. When an option is changed, the student is reassigned to an appropriate adviser for that program.

Nutritional Sciences

See p. 159.

Social Planning and Public Policy

The legislative trend in the United States that is moving public policy development from the federal to the state and local levels emphasizes the need for trained personnel in social planning and public policy. The Interdepartmental Major in Social Planning and Public Policy is designed to meet this need. The program is sponsored jointly by the Departments of Consumer Economics and Housing and Human Service Studies.

Students increase their knowledge of (1) the historical development and the current issues in social planning and public policy; (2) the ways policies and plans are formed, implemented, evaluated, and changed; (3) social systems, from the structure and functioning of contemporary society to the dynamics of individual and group behavior; and (4) values that help foster and maintain some policies and plans rather than others.

Students electing this major have opportunities to improve their skills in policy analysis, evaluative research, developing information systems, engaging consumers in the planning and policy making process, and budgeting.

Options

Two options are available in the major; a student selects the one most suited to his or her interests and career plans and completes the necessary requirements. Either option prepares a student for graduate or professional study.

Option I: Social Planning prepares students for careers in planning the organization and delivery of human services. Social planners are employed in county, regional, and state planning agencies and assist public and private health and social agencies in the design, development, and evaluation of regional and local programs.

Option II: Public Policy is planned for students who are primarily interested in the evaluation of public policy alternatives, especially implications of these policies for consumers and households. Graduates may build careers as researchers or policy analysts in planning departments or other public or private agencies at the local, regional, state, or federal level in areas related to housing, welfare, income and employment, or consumer affairs.

Academic Advising

Faculty advisers whose interest and experience lie in the fields of social planning and public policy are available to advise students on career goals and to help plan curricula. If a student decides on the major by the end of the freshman year, a faculty adviser will be assigned to help plan a curriculum in the fall of the sophomore year.

Advising coordinators Alan Hahn and John Ford will be glad to answer questions about the advising system.

Individual Curriculum

Students in the college who find that none of the major curricula meet their educational objectives may wish to investigate designing their own program of study. An individual curriculum must be within the focus of the college and must be better suited to a student's objectives than is an existing major. The individual program must include 40 credits in human ecology courses and may not exceed the normal number of credits allowed in the endowed divisions of Cornell.

Such a program of study should encompass a substantial part of the student's undergraduate education and must include at least three semesters. For this reason, a request to follow an individual curriculum should be made as early as possible and always before the second semester of the junior year.

If objectives meet the requirements, the student should discuss plans with a counselor. If an individual curriculum seems a possibility, Barbara Morse, in the Counseling Office, will help the student formally develop a program.

Special Opportunities

Several special programs allow students to receive academic credit for fieldwork and internship experience, to study in absentia, or to enter particular graduate programs after the junior year.

Human Ecology Field Study Field study provides opportunities for students to pursue fieldwork while carrying out responsibilities in placement organizations outside the University and by attending group seminars to reflect on that activity. Students are helped to develop a sophisticated framework for thinking about social systems and to draw on a variety of integrated disciplines to solve human problems. This process of integrating theory and practice distinguishes field study from work experience and provides the rationale for granting field study credit.

Each department in the college offers field study opportunities within scheduled courses and through individually arranged field study courses, which emphasize professional exploration or training related to the major. The Field Study Office, 159 Martha Van Rensselaer Hall, offers interdepartmental field-related courses with an interdisciplinary problem-solving approach to social issues.

University Programs

Africana Studies and Research Center Courses taken in the Africana Studies and Research Center (ASRC) may be used to meet some of the distribution requirements of the college. Up to two courses or 8 credits of such courses may be applied toward the 12 additional credits in natural and social sciences (Section I-C of the graduation requirements) or toward the 9 additional credits in communication, analysis, and the humanities (Section II-B). This allowance is in addition to the Freshman Seminar credits that may be taken in Africana Studies. Other courses taken in the center count as endowed division electives.

A list of ASRC courses approved to meet distribution requirements or as electives is available in the Counseling Office and in the Office of Records and Scheduling.

Center for International Studies and Women's Studies

courses that have been approved by the faculty of the College of Human Ecology for credit are posted on the bulletin board outside the Office of Records and Scheduling. Other courses offered in these special programs may not be taken for credit unless permission is obtained through petition to the Director of Special Educational Projects.

Dual-Registration Programs**Graduate School of Business and Public Administration**

A limited number of highly qualified students from Cornell undergraduate divisions, including Human Ecology, may be accepted by the Cornell School of Business and Public Administration after their junior years. Students need the approval of the B&PA admissions office, and the Director of Special Educational Projects in the College of Human Ecology. Accepted students should be aware that if the B&PA course work taken in their senior year is in excess of the 21 additional credits allowed in the Cornell endowed divisions, they will be charged for the additional hours on a per credit basis.

Cornell Medical College A limited number of highly qualified students from three Cornell divisions, including the College of Human Ecology, may be accepted by the Cornell Medical College after the junior year. To be considered for this program, the student must have completed 105 credits toward graduation by the end of the junior year. Students also need to plan ahead to ensure that distribution requirements for the Bachelor of Science degree will be met. Accepted students receive 15 credits toward the B.S. degree from their first year of study at the College of Medicine. Interested students should contact the Health Careers Program Office in the Career Development Center, 14 East Avenue.

Off-Campus Programs

Merrill Palmer Institute in Detroit provides programs of specialized study in the behavioral sciences for students enrolled for a degree elsewhere. The institute is open to students who are interested in furthering their understanding of human development and human behavior as this relates to the family and to the urban community. Students from any department of the college may apply to attend and will receive credit for courses completed in absentia. Restrictions on S-U grades and the limit of 15 credits of course work of study in absentia do not apply to work taken at Merrill Palmer.

New York State Assembly Internships A limited number of session internships with the New York State Assembly are available in spring semester to students of sophomore status and above who are enrolled in New York State colleges or universities. Human Ecology students apply to the program through the student's major department. The New York State Assembly also sponsors a summer internship. Further information about internship programs may be obtained through the Field Study Office.

Ithaca College Full-time undergraduate students at Cornell may petition to enroll in courses at Ithaca College. Students pay regular tuition to Cornell and only special fees to Ithaca College, if any are charged. Students are allowed to register for one course per term and may take no more than 12 credits in four years. Exceptions will be granted to Cornell students enrolled in methods-and-practice teaching courses at Ithaca College.

Cornell students are eligible to register only in Ithaca College courses that are relevant to their program and that do not duplicate Cornell courses. Acceptance of Cornell students into Ithaca College courses is on a space-available basis. Participation in this program is not guaranteed, and Ithaca College has the right to accept or reject students for whatever reason it deems appropriate. The program is available only during the fall and spring semesters.

For further information, contact Joyce McAllister, 146 Martha Van Rensselaer Hall.

Empire State Students

Occasionally a student who is completing requirements for a degree through the Empire State College Program is interested in taking a human ecology course. This can be done by registering through the Cornell Extramural Division, 105 Day Hall. All rules of the Extramural Division apply and registrations will be accepted only on a space-available basis and with the written approval of the course instructor.

At the time of registration, Empire State College students provide the Extramural Division with a completed copy of the Empire State College "Notification of Cross-Registration" form number SA-22, F-031, to verify enrollment in Empire State College.

Such students will be charged 25 percent of the standard extramural tuition per credit. In this case, all the tuition will be retained by the Extramural Division and none will be returned to the statutory college in which the course is offered. In special situations (such as courses offered in the biological sciences) where it is not clear whether a given course is offered by a statutory or an endowed college, it is the student's responsibility to obtain written verification from the college that the course is a statutory college course entitled to the reduced tuition rate.

Planning a Program of Study**Majors**

Each department offers a major, and within most departmental majors there are specific options. The college also offers an interdepartmental major. Selecting a major means choosing one option in one department. Although a student may satisfy the requirements of more than one major option, he or she is officially certified to graduate under only one. (The college urges students who satisfy more than one major or option to make note of this in the credentials they file in the Placement Office and to seek recommendations from faculty associated with the options completed.) Majors include the following options.

Consumer Economics and Housing (CEH): consumer economics, housing

Design and Environmental Analysis (DEA): interior and product design, apparel design, textiles, human-environment relations

Human Development and Family Studies (HDFS): does not have specific options; courses focus on cognitive, personality, and social development; infant through adolescent development; atypical development; and family studies.

Human Service Studies (HSS): community and family life education, social work

Individual Curriculum: It is possible to develop an individual program of study if none of the above programs fit particular educational and career objectives.

Nutritional Sciences (NS): consumer food science, consumer food and nutrition, community nutrition, clinical nutrition, nutritional biochemistry. (By careful planning, students may also meet the minimum academic requirements of the American Dietetic Association.)

Interdepartmental Major in Social Planning and Public Policy (ID-SPPP): social planning, public policy

Changing Majors Because any student's interests and goals may change as new options emerge, the college provides ways for students to change their majors. When a declared major no longer seems to meet a student's educational goals a counselor or faculty adviser may be able to point out alternatives. If the student decides to make a change, a change-of-major form (available from the Office of Records and Scheduling, 146 Martha Van Rensselaer Hall), ensures that the change is sent to the department in which the student wishes to major so an adviser can be assigned to the student.

Completing a Major A summary of record is kept for each student in the Office of Records and Scheduling. At fall registration each continuing student receives a copy showing which major and graduation requirements have already been met. It is important to check this summary and to bring any questions to the attention of staff members in the Office of Records and Scheduling. Although a student may complete the requirements of more than one major, he or she is officially certified to graduate under only one.

Electives

Students have individual objectives in choosing courses beyond the minimum requirements of the major. The University is diverse; the departments, centers, and special programs numerous; the fields of study almost unlimited. Counselors and department advisers are available to discuss which courses may interest students and round out their educations.

The index of *Cornell University: Description of Courses* is an excellent source of information on where different subjects are taught in the University. For example, typing is taught in the Hotel School and freehand drawing in the Department of Floriculture and Ornamental Horticulture. Some subjects are taught in more than one division of the University.

Foreign Language Study and Placement

Students who studied a foreign language before coming to Cornell and who wish to continue must take either the CEEB achievement test in that language or a departmental language placement test. The latter is given during orientation week in September and again in December, January, and May. Students in human ecology who plan to work with non-English-speaking people in this country or overseas often find it necessary to be proficient in another language. For more detailed information, see "Advanced Placement of Freshmen," p. 25.

Graduation Requirements

To graduate, students need:

- 1) to meet college credit and distribution requirements,
- 2) to complete the requirements for a major,
- 3) a cumulative average of 1.7 (C-) or better,
- 4) to fulfill residency requirements, and
- 5) to fulfill the physical education requirement.

College Requirements

These are the general areas of study and specific courses and credits required of every student in the college.

I. Natural and Social Sciences (24 credits)

- A. *Natural Sciences* (6 credits) selected from Biological Sciences 101–103, 102–104, 102–208, 105–106, 109–110; Chemistry 103–104, 207–208, 215–216; or Physics 101–102, 112, 201, 207–208.
- B. *Social Sciences* (6 credits) selected from economics (CEH 100 may be used to fulfill this requirement, but Agricultural Economics 221 and 310 may not be); psychology (including Education 110, 311, 317); sociology (including courses in rural sociology); or CEH 148 or HDFS 115, 116, or 150. (Do not take both Economics 101 and CEH 100 or both Psychology 101 and Education 110 since they are equivalent.)
- C. *Additional credits* (12 credits) selected from any subjects listed above or with courses in anthropology (except archaeology); Astronomy 102; biochemistry; microbiology; genetics and development; Geological Sciences 101; and government.

II. Communication, Analysis, and the Humanities (15 credits)

- A. *Freshman Seminars* (6 credits) selected from courses listed in the Freshman Seminar brochure, which may be obtained at 260 Goldwin Smith Hall.
- B. *Additional credits* (9 credits) selected from art; communication arts; comparative literature; drawing; English; ancient or modern foreign languages; history; history of art; history of architecture; mathematics; music; Natural Resources 407; philosophy; statistics (students should not take both I&LR 210 and Agricultural Economics 210, since the courses are substantially the same); theatre arts; DEA 101 or 115; or HSS 292.

III. Human Ecology (40 credits)

- A. *Requirements for the major* (the number of credits required varies by major and option)
- B. *Course work in at least two departments outside the major* (15 credits) including at least 6 credits or two courses in one department outside the major.

IV. Additional Credits or Electives (41 credits)

- A. *Courses in the state divisions of Cornell* (at least 20 credits) selected from courses offered by the College of Agriculture and Life Sciences; the College of Human Ecology; the School of Industrial and Labor Relations; and the College of Veterinary Medicine.

B. *Courses in the endowed divisions of Cornell* (no more than 21 credits) selected from courses offered by the Africana Studies and Research Center; the College of Architecture, Art, and Planning; the College of Arts and Sciences; the Graduate School of Business and Public Administration; the College of Engineering; and the School of Hotel Administration.

V. Physical Education (2 credits)

Students who have successfully fulfilled these requirements should have completed at least 122 credits.

Related Policies

In Sections I, II, and III the required credits listed are the minimums; credits taken in excess of those minimums (Section I, 24 credits; Section II, 15 credits; and Section III, 40 credits) count toward electives (Section IV, 41 credits).

In Sections I and II the student's major may determine which courses the student takes to meet the requirements in these sections. If the student does not want to fulfill the requirements of Section I and Section II with courses specified by the major, then he or she may apply the courses taken for the major toward the elective requirements (Section IV, 41 credits). (Courses not listed in Sections I and II may also be used to meet the 41 credits required in Section IV.)

In Sections I, II, and III-B students are permitted to lack 1 credit toward meeting the requirements for these sections. For example, 14 instead of 15 credits of human ecology courses may have been taken outside your major department, or 23 instead of 24 credits of courses in the natural and social sciences may have been taken; however, the minimum total of 120 credits (exclusive of physical education) must be met.

Section IV-A *There is no limit to the number of credits that students may take in the state divisions of Cornell* and therefore, both the total number of credits taken for Section IV and the total number of credits accumulated for graduation may exceed the minimum requirements.

Section IV-A and IV-B Elective credits earned in Cornell's endowed divisions during the summer session, credits earned in absentia, and transferred credits are counted as credits earned in the state divisions and do not count toward the 21 credits which may be taken in the endowed divisions in meeting the requirements of this section.

Section IV-B Not more than 21 credits may be taken in the endowed divisions of the University except under all of the following conditions:

- 1) Students must be in the final semester prior to graduation;
- 2) The credit taken must be in excess of the 122 credits required for graduation (for instance, a student who wants to take 23 endowed credits under this area must graduate with a total of 124 credits);
- 3) payment must be made per credit for each credit taken in excess of the 21 allowed.

In 1979-80 the fee will be \$125.66 per credit. Courses taken to meet requirements in Section I and II and within the limit of 21 credits in IV-B may be taken without charge except that credit for any course given in an endowed division will, in case of failure, be charged against the 21 endowed credits allowed under Section IV.

Related Policies for Transfer Students

Natural Sciences Entering transfer students who lack preparation in biology and either chemistry or physics, either at the high school or college level, must make up this deficiency before registering for their third semester in the college.

Section I-A Transfers who have had biology and chemistry or physics in either high school or college and who are entering human ecology programs in interior and product design, consumer economics, housing, social planning, public policy, or human development and family studies can satisfy the College of Human Ecology's natural science graduation requirements with courses taken to meet a former institution's natural science requirements.

Sections II-A Transfer students should have taken at least 6 credits in courses in English composition or in courses requiring substantial writing and offering instruction in writing equivalent to that offered in the Freshmen Seminars. Students who have not fulfilled this requirement before transferring must fulfill it at Cornell.

Section IV-B Transferred credits for courses applied toward electives do not reduce the 21 Cornell endowed credits that students are allowed.

Section V Transfer students who have had the equivalent of two semesters of college (and therefore enter as sophomores) are not required to take physical education at Cornell, regardless of whether they took physical education at their first college. Students twenty-two years of age or older at the time of matriculation to Cornell may be exempted from physical education by the College Registrar. Exemption or postponement for medical reasons must be cleared by Gannett Clinic. For further information about exemption or postponement from physical education, consult the College Registrar, Joyce McAllister, in 146 Martha Van Rensselaer Hall.

Related Policies for Freshmen

Natural Sciences The college recommends that entering students complete a unit of biology and either a unit of chemistry or physics before they matriculate. Entering freshmen who lack a unit of biological or physical science must make up this deficiency before they register for their fourth semester. A semester-long college-level course in the appropriate science is considered equivalent to a high school unit and counts as credit toward graduation requirements.

Section V Freshmen are required to take two semesters of physical education during their freshman year.

Residency Requirements

All college curricula are planned to fit within an eight-semester program. An average schedule of 15 credits a semester (in addition to physical education) is considered standard, and if pursued for eight semesters will provide the credits needed for graduation. If the student completes all the requirements — for the major, for distribution, for total credits, and for cumulative average — in fewer than eight semesters, the degree may be conferred at the end of the semester in which the last requirements are met. Students who plan to receive their degrees early should notify the registrar at the beginning of the semester so that their summaries of record may be prepared and their names placed on the list of degree candidates.

Sometimes a student (particularly a transfer student) may need an additional semester to complete a program. To register for a semester beyond the eighth, the student submits a written request to the Director of Special Educational Projects. The request should detail the reasons for wanting to enroll for the extra semester and include a list of courses planned for the additional semester. Such requests usually are granted when there appears to be no feasible way for the student to complete the professional curriculum or the degree requirements without the extra semester.

Freshmen entering the college with 15 transfer credits have seven semesters in which to complete the degree. Transfer students must complete at least 60 credits at Cornell.

Mature Students (those at least twenty-four years old at the time of matriculation) are not required to petition the Director of Special Educational Projects for approval to study beyond the usual eight semesters.

Exemptions from Requirements

Students who want an exemption from a specific graduation or major requirement may petition the Director of Special Educational Projects. Approval may be given under certain circumstances. For example, transfer students may have problems scheduling courses to meet college distribution requirements, and the Director of Special Educational Projects may approve alternative courses. If the requirement for which the student seeks exemption is one specified by the major, the Director of Special Educational Projects will refer the petition to the department for consideration.

Petition forms are available in the Division of Student Services, N101 Martha Van Rensselaer Hall.

Procedures

Course Enrollment

Students are expected to complete course enrollment during a designated period of time each semester. Failure to do so carries a \$10 penalty, which can be waived only if circumstances are completely beyond the student's control. It is the student's responsibility to find out the dates of course enrollment.

Before or during course enrollment, students should talk to a department adviser or counselor in Student Services about their program plans. Listings of the courses offered by the college are issued by the Office of Records and Scheduling before the start of course enrollment. The *Course and Time Roster* is issued by the Office of the University Registrar, 222 Day Hall. Last-minute course changes are posted in that office as well as in the Counseling Office, N101 Martha Van Rensselaer Hall.

Since new students starting at midyear do not have an opportunity to enroll in courses until after they arrive on campus and have completed their University registration, the college tries to reserve places for them in human ecology courses. New students arriving at midyear usually enroll in human ecology courses on Thursday afternoon following University registration that morning. For the next few weeks, they have an opportunity to add courses in other divisions of the University.

Freshmen and transfer students registering for the first time in the University in the fall enroll in their courses during the summer before they arrive on campus.

Continuing students enroll for courses for fall semester in March or April; for spring semester, in October or November. Course enrollment materials are mailed to each new student; continuing students are notified by posters and notices in the *Cornell Daily Sun*. Course enrollment materials are available from the Counseling Office and must be completed and filed in the Records and Scheduling Office by the announced deadline.

Permission of the Instructor Certain courses may be taken only with the permission of the instructor, as indicated in *Cornell University: Description of Courses*. The instructor's permission must be obtained before the student enrolls in the course. After giving permission, the instructor initials the green registration schedule or signs the optical mark course enrollment form that can be obtained from the Office of Records and Scheduling or the Counseling Office.

Students interested in taking a course in the Department of Art in the College of Architecture, Art, and Planning are required to register with the department secretary before enrolling in the course. Seniors wishing to take an elective course in the School of Business and Public Administration are required to obtain permission of the instructor on a course authorization form that the student then files with the school's Registrar, 312 Malott Hall.

Special Studies Courses Each department in Human Ecology offers special studies courses that provide an opportunity for students to do independent work not available in regular courses. One of these, 300, Special Studies for Undergraduates, is intended primarily for students who have transferred from another institution and need to make up certain material.

The other special studies courses are 400, Directed Readings; 401, Empirical Research; and 402, Supervised Fieldwork. These courses are normally taken by upperclass students, and work is supervised on an individual basis by a faculty member in the department in which the course is offered. It is important to enroll in the appropriate course number (300, 400, 401, or 402) for the special project.

Students who wish to take a special studies course must talk with the faculty member under whose supervision the study would be done and then prepare a plan of work. If the faculty member agrees to supervise the study, a multicopy description of the study to be pursued must be filled out. Signatures of the instructor and the department chairman must be on the form before it is taken to the Office of Records and Scheduling. Forms and instructions are available in the Counseling Office.

To register in a special studies course taught in a department outside the college, students should follow the procedures established for that department.

Course Loads The normal course load in the college ranges from 12 to 18 credits. No student may enroll in more than 15 credits or five courses during Course Enrollment without special permission from the College Registrar. To receive such permission, students must attach a note to the hardback green course schedule citing their reasons for carrying a heavier load. Then the form must be taken to the Office of Records and Scheduling.

Credits in addition to the first 15 credits may be added during the change-of-registration period at the beginning of the semester, without special permission.

Students should avoid planning excessive work loads; the time required to keep abreast of courses tends to increase as the semester progresses. Courses cannot be dropped after the seventh week of classes without petitioning, so try to avoid the need to drop courses.

Except for mature students, a student may not carry fewer than 12 credits (exclusive of physical education) without permission. Forms for petitioning and advice on how to proceed are available from the Counseling Office.

Students who petition before the beginning of the term to carry less than 12 credits may be eligible for proration of tuition. To apply for proration, obtain a form from the Bursar's Office in Day Hall or from the Office of Records and Scheduling. After the petition to carry less than 12 credits is approved, the proration form signed by the College Registrar must be returned to the Bursar's Office, 260 Day Hall.

Mature students may carry 6 to 12 credits without petitioning. However, they still must have the College Registrar sign the form for proration of tuition and fees and return the form to the Bursar's Office, 260 Day Hall.

Oversubscribed Courses Enrollment in many Human Ecology courses is limited. When a course is over-enrolled students are generally assigned on the basis of seniority. The student's professional goals may be considered. Those students not admitted to a course may be placed on a waiting list and will find a note to that effect attached to the course enrollment printout.

Late Course Enrollment Students who fail to enroll in courses by the deadline normally must wait until the beginning of the semester to enroll and must pay a \$10 fee. Extensions are sometimes granted if requested from the College Registrar before the end of course enrollment. Students who fail to meet the deadline for any reason should see a counselor in the Counseling Office as soon as possible. In some cases, if the delay was absolutely unavoidable, the student may be allowed to enroll in courses late, and it is sometimes possible to have the fee waived. Waiving of the fee must be handled through the College Registrar. A counselor can advise students about course enrollment under these circumstances.

University Registration

Students go to Barton Hall for University Registration at times announced by the Office of the University Registrar. At registration, students fill out and return materials that are given to them, and their ID is validated.

After completing University Registration, students proceed to the College of Human Ecology table in Barton Hall. At that table they hand in their college registration card and in return receive a computer printout of courses for which they are officially enrolled. It is the student's responsibility to check the listing for accuracy of course numbers, credits, and other data. If there are errors they should be corrected immediately. Procedures for making changes because of errors in the printout as well as for other reasons are described below, under "Course Enrollment Changes."

During University Registration for the fall semester each continuing student receives a copy of his or her summary of record from the Office of Records and Scheduling. The summary shows which graduation and major requirements have been completed. Students who have any questions

about the summary's accuracy should see a counselor in the Counseling Office or someone in the Office of Records and Scheduling.

Late University Registration A student who misses registration day must pay a \$10 penalty. Late registration with the University may be completed during the first three weeks of the term. After the third week of the term, students will not be allowed to register unless they petition their college for permission. After completing University Registration, students must bring their college registration cards to the Office of Records and Scheduling where they will then receive computer printouts of the courses for which they are officially registered. Students who fail to register by the seventh week of the term will be withdrawn from the University. Students who wish to return must reapply, and should contact the Admissions Office for further information.

Course Enrollment Changes

During the first three weeks of each term courses may be added or dropped without charge. A student's total course load may be increased to more than 15 credits at this time without petitioning. After the third week of the term a student may change a course only with the permission of the instructor and the payment of a \$10 late fee. Instructors have the right to consider students' requests for course changes on an individual basis or to announce at the beginning of the term a specific date between the third and seventh weeks beyond which they will no longer approve course changes.

Since changes from the third through the seventh week of the term require payment of a \$10 fee and permission of instructor and since after the seventh week students must petition to make a change, it is best to assess work loads carefully at the beginning of the term.

Procedures for making course changes during the change-of-enrollment period are given below.

- 1) From the Office of Records and Scheduling or from the Counseling Office obtain an optical mark Add/Drop/Change Form for each course to be canceled or added.
- 2) Fill the forms out and take them to the appropriate office to be signed; for human ecology courses the forms should be taken to the Office of Records and Scheduling; for courses outside the college, the forms should be taken to the appropriate departmental offices.
- 3) Students should ask the person handling the class lists to add their names to the list of enrolled students for courses they are adding, to remove their names from the class list for courses to be dropped, and to sign the appropriate Add/Drop/Change Form.
- 4) Turn all signed forms in to the Office of Records and Scheduling. Enrollment cannot be officially changed until the signed forms are filed in that office. Students who fail to cancel a course they are no longer attending risk receiving an F or an NA (not attending) in the course because they are still officially enrolled. There is no charge for changes at this time.
- 5) Students receive carbon copies of each Add/Drop/Change Form at the time they are turned in. These copies are stamped with the date of receipt. *It is important to keep these copies to verify later that the forms were filed.*

A student who wishes to have his or her name placed on a waiting list for a human ecology course should be aware that such lists are compiled during the change-of-enrollment period on a first-come, first-served basis, without regard for seniority or other factors. *Students also must check their status on the waiting list every forty-eight hours and, if space has not opened up, request that their names be kept on the list.* Names not updated will automatically be dropped from the list.

Students enrolled in a human ecology course with a limited enrollment who have not attended the first two class sessions will be dropped from the course unless circumstances that have prevented them from attending class have been discussed with the instructor.

After the third week and through the seventh week of the term follow the procedure outlined above for changes made during the first three weeks of the semester except that instructors will sign the Add/Drop/Change Forms for human ecology courses and students will pay a \$10 fee.

After the seventh week of classes, a student may not make course changes without petitioning for approval. A petition is usually approved only when the circumstances prompting the change were beyond the student's control—for example, illness. If the petition is made on the basis of health, supportive medical evidence should be attached to the petition. Students should realize that they are expected to attend classes and do assigned work until the petition has been formally approved.

Study in Absentia

Under certain conditions credit toward a Cornell degree may be given for study in absentia, that is, study done at an accredited institution away from Cornell after entering the College of Human Ecology. To be eligible for credit for such study a student must be in good academic standing and must receive permission in advance from the College Registrar. Students not in good standing may study in absentia but will not receive transcript credit until they return to good standing. (Petition forms for this purpose are available in the Counseling Office.) Credit may be granted for study in absentia after the work has been done, but there is no guarantee that such credit will be awarded without advance permission.

Up to 15 credits may be taken in absentia as long as the work done does not duplicate courses already taken and the study is relevant to the student's program and the requirements of the college. More than 15 credits of work in absentia may be allowed under the following conditions: (1) the work taken represents a special educational opportunity not available at Cornell, (2) it relates to the student's particular professional goals, and (3) that goal is consistent with the focus of the college. To take more than 15 credits in absentia a student must submit a petition to the Director of Special Education Projects who will evaluate the proposed program. (Forms are available in the Counseling Office.)

If part of the work for which credit is sought is to be applied to requirements of the major, the petition will be sent to the appropriate department for approval. If credit is sought for work to be done in a modern foreign language in which the student has previously studied, the approval of the Department of Modern Languages and Linguistics in the College of Arts and Sciences must be obtained.

Students are responsible for having the registrar of the institution where they study in absentia send transcripts of grades to the Office of Records and Scheduling at the College of Human Ecology. Credit can then be officially assessed and applied toward the Cornell degree. Only credits (not course names and grades) for study in absentia appear on the Cornell University transcript.

A student who holds Regents or Children of Deceased or Disabled Veterans Scholarships may claim that scholarship for study in absentia if the study is done in a college in New York State and if it is for a maximum of 15 credits acceptable to the College of Human Ecology.

The rules regarding study in absentia apply to transfer students with the additional stipulation that at least 60 credits must be taken at Cornell. At least 40 of the 60 credits must be in the College of Human Ecology at Cornell unless the student has transferred equivalent human ecology credit. (No more than 20 credits of equivalent credit may be applied to the 40 credits required in human ecology course work.)

Leaves of Absence or Withdrawal

Students may request a leave of absence prior to the beginning of the semester for which a leave is desired or during the first seven weeks of the semester. A leave may be extended for a second semester by requesting an extension in writing from the Office of Records and Scheduling. Students who are contemplating taking leave of absence or withdrawal must discuss plans with a counselor. If the student decides to take a leave of absence or withdraw, a counselor will notify the Office of Records and Scheduling and the office will process the official forms.

Requests for leaves of absence received after the first seven weeks of the semester or requests for a leave of absence from students who have already had two semesters' leave of absence will be referred for action to the Committee on Academic Status. The committee may grant or deny such requests, attaching conditions as it deems necessary. Leaves of absence after the first seven weeks generally are granted only when there are compelling reasons why the student is unable to complete the semester, such as extended illness.

If a leave of absence is requested after the first seven weeks, students are advised to attend classes until action is taken on their petitions. A student whose petition for a leave of absence is denied may choose to withdraw or to complete the semester.

The academic records of all students who are granted a leave of absence are subject to review, and the Committee on Academic Status may request grades and other information from faculty to determine whether the student should return under warning, severe warning, or in good academic standing.

Students who leave the college without an approved leave of absence or do not return after the leave has expired will be given a withdrawal after the seventh week of the term in which they failed to register. A withdrawal is a termination of student status at the University. Students may voluntarily withdraw at any time by notifying a counselor. A student who has withdrawn from the college and who wishes to return at a later date must reapply through the Committee on Admissions for consideration along with all other applicants for admission.

Mature Students

The college recognizes that students who interrupted their formal education and are returning to school have problems different from those of the average undergraduate. To facilitate the education of mature students, defined as those 24 years old or older at matriculation, the college has adopted certain procedures specifically for that group.

Mature students are permitted to enroll for as few as 6 credits without petitioning. At the beginning of each term, mature students planning to take a light course load should pick up a proration of tuition form from the College's Office of Records and Scheduling, fill it out, and have it signed by the College Registrar and return it to the Bursar's Office in Day Hall.

Mature students also are permitted to extend their residency beyond the normal eight terms. It is highly recommended that mature students contact Vivian Geller, the director of Continuing Education Information Center located in the Office of the Dean of Students, 103 Barnes Hall, for information on services available through that office.

Grades

See "Cornell University Grading System," p. 50.

The official University grading system uses letter grades with +s and -s. Passing grades range from A+ to D-; F is failing. INC denotes incomplete, NA is given when a student registered for a course has not attended, and R is the grade given at the end of the first semester of a year-long course. The grades of NA, INC, and R do not have quality point equivalents attached. These are the quality point equivalents:

A+ = 4.3	B+ = 3.3	C+ = 2.3	D+ = 1.3
A = 4.0	B = 3.0	C = 2.0	D = 1.0
A- = 3.7	B- = 2.7	C- = 1.7	D- = 0.7
			F = 0.0

This is how a term average is computed:

Course	Grade	Quality Points	Credits	Product
Chemistry 103	B+	3.3	3	9.9
English 151	C-	1.7	3	5.1
DEA 145	B	3.0	4	12.0
CEH 100	B	3.0	3	9.0
DEA 111	C	2.0	3	6.0
Total			16	42.0

To arrive at the term average add the products (hours \times quality points) and divide by the number of credits taken. Here 42 divided by 16 equals 2.63.

The cumulative average (an average of grades from two or more terms) equals the sum of the products of all the grades at Cornell divided by the total number of credits taken.

S-U Grades

Some courses in the college and in other academic units at Cornell are offered on an S-U basis; that fact is indicated in the course description catalog. University regulations concerning the S-U system require that a grade of S be given for work equivalent to a C- or better; for work below

that level, a U must be given. No grade-point assignment is given to S, and S or U grades are not included in the computation of semester or cumulative averages. A course in which a student receives an S is, however, counted for credit. No credit is received for a U. Both the S and U grades appear on a student's record. A student who is attempting to qualify for the Dean's List must take at least 12 credits for the usual A-F grades.

Only juniors and seniors may take courses for an S-U grade in which the grade of S or U is optional; sophomores may take courses for an S-U grade in which *only* the grade of S or U is offered. A student may take no more than four courses (or 12 credits) on an S-U basis during his or her college career; however, more than one S-U course can be taken in one semester. S-U courses may be taken only as electives or in the 15 credits required in the college outside the major unless the requirements for a specific major indicate otherwise. Freshmen enrolled in English 137 and 138 (offered for S-U grades only) are permitted to apply these courses to the Freshman Seminar requirement.

In order to take a course for an S or U, a student must first make sure by checking *Cornell University: Description of Courses* that the course is offered on that basis, then obtain the permission of the instructor and file a special S-U form with the instructor's signature and the Add/Drop/Change Form in the Office of Records and Scheduling before the end of the third week of the term. After the third week of the term, students must petition the College Registrar to change S-U grading status. Forms are available in the Office of Records and Scheduling and in the Counseling Office.

Incompletes

A grade of INC (Incomplete) is given when a student does not complete the work for a course on time, but when, in the instructor's judgment, there was a valid reason. A student with such reason should discuss the matter with the instructor and request an INC. A grade of incomplete remains permanently on a student's official transcript even after the work is completed and a final grade recorded.

A student who receives an INC in a course may be permitted a maximum of two semesters and a summer in which to complete the work and receive a regular grade; if the work is not completed by that time, the INC remains on the record, and no credit is given for the course.

To receive a grade of INC a student initiates the request by filling out a "Student-Faculty Agreement for Assignment of the Grade of Incomplete" form and then having a conference with the instructor — preferably prior to the study period — to work out the agreement. The form must be submitted by the instructor with the final grade cards whenever an incomplete is given.

This form is for the student's protection, particularly in the event that a faculty member with whom a course is being completed leaves campus without leaving a record of the work completed in the course.

If circumstances prevent a student from being present to consult with the instructor, the instructor may, if requested by the student, initiate the process by filling out and signing part of the form and turning it in to the Office of Records and Scheduling with the grade sheet. Before a student will be allowed to register for succeeding semesters he or she must go to the Office of Records and Scheduling to fill out and sign the remainder of the form.

If the work is satisfactorily completed within the required time, the course appears again on the student's official transcript, with the final grade received, for the semester in which the course was completed.

A student who completes the work in the required time and expects to receive a grade must take the responsibility for checking with the Office of Records and Scheduling (about two weeks after the work has been handed in) to make sure that the grade has been received. Any questions should be discussed with the course instructor.

Academic Honors

The college encourages high academic achievement and recognizes outstanding students in several ways.

Dean's List Excellence in academic achievement is recognized each semester by placing on the Dean's List the names of students who have completed satisfactorily at least 12 credits with letter grades other than S or U and who rank in the top 10 percent of their class for the semester. No student who has received an F or U in an academic course will be eligible.

Omicron Nu seeks to promote graduate study and research and to stimulate scholarship and leadership toward the well-being of individuals and families. A chapter of a national honor society in the New York State College of Human Ecology, it stimulates and encourages scholarly inquiry and action on significant problems of living — at home, in the community, and throughout the world.

Students are eligible for membership when they have attained junior status and if they have a cumulative average of not less than B. Transfer students are eligible after completing one year in this institution with a B average. Current members of Omicron Nu elect new members. Not more than 10 percent of the junior class may be elected to membership, and not more than 20 percent of the senior class may be elected. Graduate students nominated by faculty members may be elected.

Bachelor of Science with Honors recognizes outstanding scholastic achievement in an academic field. Programs leading to a degree with honors are offered to selected students by the Department of Human Development and Family Studies and the Division of Nutritional Sciences. Information about admission to the programs and their requirements may be obtained from the department, the division, or from the Division of Academic Services.

Bachelor of Science with Distinction recognizes outstanding scholastic achievement. Consideration will be given to seniors whose academic standing at the end of seven semesters is in the top 10 percent of the graduating class. The honor is conferred on those seniors who are in the top 5 percent of the class after grade point averages have been adjusted by including grades for transfer work and after grades earned in the 5th, 6th, and 7th terms have been given double weighting in the final average. The graduating class includes students who will complete requirements for Bachelor of Science degrees in January, May, or August of the same calendar year.

To be eligible for consideration, transfer students must have completed 45 credits at Cornell. In determining the academic standing of a transfer student, previous work taken at another institution is included in the computation of the student's academic average. Names of seniors who meet these requirements are presented to the faculty of the college for approval.

New York State School of Industrial and Labor Relations

Administration

Robert B. McKersie, Dean
Lois S. Gray, Associate Dean, Extension and Public Affairs
Robert E. Doherty, Associate Dean, Academic Affairs
Frank B. Miller, Director, Office of Resident Instruction
Shirley Harper, Librarian
Ronald G. Ehrenberg, Director, Research
Frances Benson, Director, Publications
George M. Calvert, Director of Budget
Robert Aronson, Graduate Field Representative
Donald E. Cullen, Editor, *Industrial and Labor Relations Review*

Degree Program

	Degree	HEGIS Code
Industrial and Labor Relations	B.S.	0516

The School

The School of Industrial and Labor Relations at Cornell is a small college within a large university, and it tries to maintain the small-college atmosphere that would be expected of a college that has about six hundred undergraduates and approximately one hundred graduate students.

The school's home is a unified complex of classroom buildings, a library, and administrative and faculty offices clustered around two courtyards. Daily classroom activities and other school events provide many opportunities for Industrial and Labor Relations students and faculty to interact. At the same time, students are members of the larger Cornell community and participate in its programs.

Half of the school's typical freshman class come from the greater New York City area. Another 30 percent live in other parts of New York State. Students from other states and a few from foreign countries make up the rest of the class. Enrollment of women has been increasing in recent years, and the current ratio of men to women in the school is about two to one.

Students enrolled in the School of Industrial and Labor Relations at Cornell may take a substantial number of courses in the other six undergraduate colleges and schools of the University, including the College of Arts and Sciences. Cornell students have access to all of the libraries and other University facilities.

The school operates in four areas: (1) undergraduate and graduate resident instruction, (2) extension and public service, (3) research, and (4) publications. It provides instruction to young people on campus who are preparing for careers in the field, as well as to men and women already engaged in industrial relations activities and the general public through its Extension and Public Service Division.

The school's Conference Center, part of the extension division, initiates and hosts conferences covering the full scope of industrial and labor relations. The center provides continuing education and information to practitioners and scholars.

The Research Division develops materials for resident and extension teaching and originates studies in industrial and labor relations. The Publications Division publishes and distributes the research results.

Departments of Instruction

Courses in the school are organized into six departments:

Collective Bargaining, Labor Law, and Labor Movements studies the history of the labor movement and collective bargaining in the United States, as well as the role of government in labor relations.

Economic and Social Statistics includes the principles of statistical reasoning, statistical methods, and the application of statistical tools of analysis.

International and Comparative Labor Relations is concerned with industrial and labor relations developments in other countries, both industrialized and less developed.

Labor Economics deals with analysis of the labor force, labor markets, wages and related terms of employment, income distribution, unemployment, health and safety in industry, and retirement.

Personnel and Human Resource Management examines the efforts of work organizations to recruit, train, compensate, and manage their members as well as with public policy and programs concerning employability, employment, and income of workers.

Organizational Behavior investigates human behavior in organizations through psychology and sociology. Courses treat individual human behavior, organizations in society, and industrial society.

A full list of required and elective courses is available from the Office of Resident Instruction, 101 Ives Hall.

Resident Instruction

This division conducts the on-campus programs leading to the degrees of Bachelor of Science, Master of Industrial and Labor Relations, Master of Science, and Doctor of Philosophy from Cornell.

Office of Resident Instruction

Staff members from the Office of Resident Instruction, 101 Ives Hall, work closely with faculty and faculty committees to administer degree programs for the school. The office's responsibilities include the admitting and orienting of new students, maintaining students' personal and academic records, administering the faculty advisory system and academic standards, counseling students on personal and academic problems, and administering the school's financial aid programs. The office also provides a career counseling service and works closely with seniors that are planning graduate study.

Counseling and Advising

As entering freshmen, students will be assigned a counselor in the Office of Resident Instruction for orientation, academic advising, and counseling throughout the first year. (Transfer students are assigned counselors only for their first term.)

At the end of the first year (or term), each student will be assigned a faculty adviser. All teaching faculty members serve as advisers, and students' preferences for advisers are followed whenever possible.

Minority Students Cornell University administers a variety of special opportunity programs designed to provide financial assistance and other forms of assistance to (1) minority students and (2) low-income students meeting program guidelines. The emphasis of these special programs is to aid in increasing representation of students from minority groups present in New York State who historically have been underrepresented in higher education. Participation is also available to those residing outside New York State. For details, prospective students should consult the *Guide for Candidates* which accompanies each undergraduate application or will be sent upon request by the Office of Admissions.

Study Options

Several study options are open to ILR undergraduates, making it possible to tailor a program to fit specific needs.

One such option is the five-year ILR master's degree. With early planning, some students may earn the M.S. degree in the fifth year. Using another option, some ILR students arrange for dual registration in Cornell's Graduate School of Business and Public Administration (B&PA), earning their bachelor's degree in ILR and a master's degree in B&PA after five years of study.

Some students elect to spend a junior semester in New York City, with a chance to observe actual labor problem solving, or as much as a year of study at a foreign university. Others opt for internships that give them practical field experience, such as a summer in New York City's Office of Collective Bargaining or a term doing research for the New York State Senate Committee on Labor in Albany.

For more information, see "Special Academic Programs," which follows the next section.

A number of ILR courses deal directly with today's problems and involve fieldwork in the Ithaca area, elsewhere in New York State, and even in foreign countries. These courses take some students to the state legislature in Albany or to community action groups. Others may work in prisons or mental institutions.

The ILR program allows students who wish to conduct their own research to receive course credit for individually directed studies, if the program is supervised by a faculty member.

Study in Absentia

Students wishing to study at another institution for a semester or for a year and receive credit toward their undergraduate degree may petition to study in absentia. This permits students to study at a foreign university or at another American school that offers a program unavailable at Cornell. Eligibility requires good standing and approval of study plans by the Director of Resident Instruction. Course work taken in absentia is usually not evaluated for transfer credit until the work has been completed and the student has returned to the school. Students then submit a course syllabus and other evidence of content to the chairman of the department that might have offered the respective course, or to a counselor in the Office of Resident Instruction if the course is more appropriate as an elective.

Leave of Absence or Withdrawal

If a student desires to withdraw or to take a leave of absence from the University, an interview should be scheduled with a counselor in the Office of Resident Instruction. Counselors will assist students in petitioning for a leave of absence.

Requirements for Graduation

To earn the Cornell Bachelor of Science degree in industrial and labor relations, the student needs to complete successfully 120 credits. Normally, this requires eight terms, although some students finish their studies in a shorter time.

Required Courses (52 credits)

The current curriculum prescribes the courses and subjects listed in the table below to be taken in the terms indicated during the freshman, sophomore, and junior years. In the senior year, all courses will be electives.

Elective Courses (68 credits)

From the courses offered by the school, students must select a minimum of 30 credits of elective courses. No more than 8 of these 30 credits may be satisfied by I&LR 499, Directed Studies.

The remaining 38 credits may be selected from the courses of any other college at Cornell, but a student who takes more than 33 credits in the endowed colleges (the College of Architecture, Art, and Planning; the College of Arts and Sciences; the Graduate School of Business and Public Administration; the College of Engineering; and the School of Hotel Administration) will be billed for the additional tuition at the current cost per credit.

The number of credits that may be taken in the endowed colleges at no additional cost to the student may be changed at any time by official action of the school.

Required Courses

<i>Course or Subject</i>	<i>Credits</i>	<i>Term</i>
Freshman Year		
Freshman Seminars*	6	Fall and spring
Econ 101–102, Introductory Economics*	6	Fall and spring
Psych 101, Introduction to Psychology*	4	Fall
I&LR 100–101, History of Industrial Relations in the United States	6	Fall and spring
I&LR 140, Development of Economic Institutions	3	Spring
I&LR 120–121, Society, Industry, and the Individual I and II	6	Fall and spring
Physical education	0	Fall and spring

Sophomore Year

I&LR 201, Labor Relations Law and Legislation	3	Fall
I&LR 240, Economics of Wages and Employment	3	Fall
I&LR 210, Statistics	6	Fall and spring
I&LR 200, Collective Bargaining	3	Spring†
I&LR 260, Personnel Management	3	Fall or spring

Junior Year

I&LR 340, Economic Security	3	Fall
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Recommended Courses Offered by the College of Arts and Sciences

Government Government III, American Government and Politics, is a prerequisite to most other courses offered by the Department of Government. It is strongly recommended as an elective, preferably in the sophomore year.

Mathematics Students considering graduate work in any of the social sciences are strongly urged to take appropriate courses in mathematics, such as calculus (Mathematics 111–112 or Mathematics 107–108).

Freshman Year

<i>Fall Semester</i>	<i>Credits</i>
Freshman Seminar*	3
Econ 101, Introductory Economics*	3
Psych 101, Introduction to Psychology*	4
I&LR 100, History of Industrial Relations in the United States	3
I&LR 120, Society, Industry, and the Individual	3
	16

<i>Spring Semester</i>	<i>Credits</i>
Freshman Seminar*	3
Econ 102, Introductory Economics*	3
I&LR 121, Society, Industry, and the Individual II	3
I&LR 140, Development of Economic Institutions	3
I&LR 101, Special Studies in the History of Industrial Relations in the United States	3
	15

*College of Arts and Sciences.

†May be postponed to the fall of the junior year.

Sophomore Year

<i>Fall Semester</i>	<i>Credits</i>
I&LR 201, Labor Relations Law and Legislation	3
I&LR 240, Economics of Wages and Employment	3
I&LR 210, Statistics I	3
I&LR 260, Personnel Management (also offered spring semester)	3
Electives	3
	15
<i>Spring Semester</i>	<i>Credits</i>
I&LR 200, Collective Bargaining	3
I&LR 211, Economic and Social Statistics or	
I&LR 310, Design of Sample Surveys	3
I&LR 331, Statistics II	4
Electives	9
	15 or 16

Junior Year

<i>Fall Semester</i>	<i>Credits</i>
I&LR 340, Economy Security	3
Electives	12
	15
<i>Spring Semester</i>	<i>Credits</i>
Electives	15
	15

Senior Year

<i>Fall Semester</i>	<i>Credits</i>
Electives	15
<i>Spring Semester</i>	<i>Credits</i>
Electives	13 or 14

Schedule Changes

Occasionally it may be necessary for a student to request changes in his or her course schedule either before a term begins or during the semester. Such requests *must be directed to the Office of Resident Instruction* in order to avoid possible loss of academic credit or failing grade.

Class Attendance

It is each student's responsibility to attend all scheduled classes unless approved excuses have been given by the faculty. In some courses an instructor may permit a maximum number of class absences without a grade penalty or dismissal from the course. An approved explanation for absence from class occasionally may be granted in advance of the expected absence by the Office of Resident Instruction. An approved absence may be warranted by:

- 1) participation in authorized University activities, such as athletic events, dramatic productions, or debates;
- 2) medical problems supported by record of clinic or infirmary treatment;
- 3) serious illness or death in immediate family;
- 4) other circumstances beyond the student's control.

A request for approval of an absence should, when possible, be made to the Office of Resident Instruction *before the date of expected absence*. A reported and

approved explanation of absence does not relieve a student from fulfillment of academic requirements during the period of absence. The course instructor has the authority to determine what work must be completed. The office can only confirm the explanation for absence. Students should inform the Office of Resident Instruction of any problems they have meeting course requirements.

Academic Standing and Grades**Academic Integrity**

In 1977 the faculty of the School of Industrial and Labor Relations approved a revised code of academic integrity. This code, while based on the Cornell University code, varies somewhat. Copies are available from the Office of Resident Instruction, 101 Ives Hall.

Dean's List

A Dean's List is compiled for each of the four undergraduate classes each semester on the seventh day following receipt of final grades from the Registrar. To be eligible for the Dean's List a student must meet *all* of the following criteria as of that date:

- 1) have a semester average of 3.2 or better and rank in the top 20 percent of the class;
- 2) have a minimum of 12 letter-graded credits for the semester;
- 3) have completed all courses registered for at the beginning of the semester;
- 4) have satisfied all requirements for good standing.

Academic Standing

Good standing requires that all of the following criteria be met at the end of each term.

- 1) An average of C- (1.70) for the semester's work, including a minimum of 8 completed and graded credits.
- 2) No failing grades in any course, including physical education.
- 3) A cumulative average of C- (1.70) for all completed terms.

If at the end of any term in which a student fails to maintain good standing or if overall academic performance is so marginal as to endanger the possibility of meeting school and University degree requirements, his or her record is reviewed by the Committee on Academic Standards and Scholarships. The committee may issue a written warning to the student at that time.

Involuntary Separation from the School for Academic Reasons

A student may be denied permission to reregister at the end of any term when he or she has failed:

- 1) to establish good standing after a semester on warning;
- 2) to maintain an average of 1.70 in any term after a previous record of warning;
- 3) to achieve good standing after being on warning any two previous semesters;
- 4) two or more courses in one term or has a term average of 1.00 or below.

The Academic Standards and Scholarship Committee may decide to permit a student to remain on warning more than one semester if there has been significant improvement even though the cumulative average is still below 1.70.

S-U Grading Policy

An undergraduate may register to receive a final grade of S (Satisfactory) or U (Unsatisfactory) in courses that offer this option — either in the school or in other divisions of the University — subject to the following conditions.

- 1) The S-U option may be used in ILR and in out-of-college course electives *only*, not in directed studies.
- 2) Students are limited to registering in two S-U courses per term.
- 3) S-U registration is limited to 4 credits per course.
- 4) Students registering for S-U grades must be in good standing.
- 5) Students must fulfill the graduation requirement of 105 letter-graded courses.

ILR faculty members assign a grade of U for any grade below C- and a grade of S for any grade of C- or better. A grade of U is considered equal to an F in determining a student's academic standing although it is not included in the cumulative average.

No change of grading (from letter to S-U or from S-U to letter) may be made after the first three weeks of class. *There are no exceptions* to this restriction and appeals will not be accepted.

Incomplete Grades

An Incomplete (INC) is a grade assigned when the course has not been completed for reasons that are acceptable to the instructor. It is understood that the work may be completed later and credit given. Instructors may grant an incomplete grade for a limited number of clearly valid reasons, but only to students with substantial equity in a course. A firm and definite agreement on the conditions under which it may be made up must be made with the instructor. The school's policy allows a maximum of two full terms of residence for removal of an incomplete. An incomplete grade not made up within this time automatically becomes an F.

Special Academic Programs

In order to meet the special academic objectives of some students, the school's faculty has established several special academic programs. For additional information please contact a counselor in the Office of Resident Instruction. Counselors will explore the program with students to help them decide if it suits their interests.

Dual Registration in Business and Public Administration

Dual informal registration in the School of Business and Public Administration leads to a Bachelor of Science degree in Industrial and Labor Relations and a Master's degree in Business and Public Administration after five years of study and is open to students who meet the requirements of the Graduate School of Business and Public Administration.

Early planning and application by each student, preferably in the sophomore year, is desirable to ensure that Business and Public Administration expectations and the Industrial and Labor Relations curriculum requirements are fulfilled. Students interested in double registration in the Graduate School of Business and Public Administration should contact the Admissions Office, 319 Malott Hall, and a counselor at the Office of Resident Instruction.

Five-Year Master of Science Degree Program

With early planning, it is possible to earn the M.S. degree in a fifth year of study. This program is designed specifically for those who wish concentrated study in an area of specialization in the school for a terminal Master's degree.

Students considering this program should consult a counselor in the Office of Resident Instruction after their freshman year.

Junior Semester in New York City

For the past few years the Junior Semester in New York City program has provided students with a vivid understanding of problems in labor and industrial relations through observation and participation in "real-life" labor problem solving. A small number of selected students spend a term of the junior year in New York City in close contact with practitioners. Their activities include independent research under direction of ILR faculty and seminars drawing on fieldwork experience with employers, labor organizations, and government agencies in New York City. More information about this program is available from the Office of Resident Instruction.

Junior Year Abroad

A few students each year are granted permission to register in absentia and continue their studies at a foreign university. Although the school does not have a fixed program for foreign study, students who have studied abroad generally receive some credit for their course work and have found it a very rewarding experience. Students may attend a foreign university of their choosing but guidance in finding and selecting programs is available from the Office of Resident Instruction and from the Career Development Center, 14 East Avenue.

Extension Division Internship

The Extension Division provides an opportunity for undergraduates to work with the extension staff and clientele as extension interns. This entails research, development of teaching materials, and participation in the division's adult education programs. Students, on their own initiative, may become involved in assisting extension faculty in training programs and in the development of field research.

Faculty

Collective Bargaining, Labor Law, and Labor Movements

R. Donovan, chairman; G. Brooks, D. Cullen, C. Daniel, R. Doherty, H. Finch, M. Gold, J. Gross, K. Hanslowe, G. Hildebrand, R. Keeran, M. Kelly, T. Kochan, G. Korman, D. Lipsky, R. McKersie, J. Morris, P. Ross, J. Windmuller

Personnel and Human Resource Management

W. Wolf, chairman; T. DeCotiis, G. Delacruz, L. Dyer, J. Farley, F. Foltman, W. Frank, F. Miller, S. Muller, R. Risley, W. Wasmuth

Economic and Social Statistics

P. McCarthy, chairman; I. Blumen, I. Francis, P. Velleman

International and Comparative Labor Relations

J. Windmuller, chairman; M. Clark, W. Galenson,
G. Hildebrand, W. Whyte

Labor Economics

R. Ehrenberg, chairman; R. Aronson, R. Butler, G. Clark,
G. Fields, G. Hildebrand, R. Hutchens, O. Mitchell,
R. Smith, J. Svejnar

Organizational Behavior

L. Williams, chairman; H. Aldrich, S. Bacharach,
L. Gruenfeld, T. Hammer, N. Rosen, R. Stern, H. Trice,
W. Whyte

The graduate program of the Cornell Law School is a small one, to which only a few students are admitted each year. The LL.M. degree (Master of Laws, Legum Magister) and the J.S.D. degree (Doctor of the Science of Law, Jurisprudentiae Scientiae Doctor) are conferred. A small number of law graduates may also be admitted as special students, to pursue advanced legal studies without being degree candidates.

For further information, refer to *Cornell University Announcements: Law School*, obtainable from the Director of Admissions, Myron Taylor Hall.

Law School

Administration

Roger C. Cramton, Dean of the Law Faculty
Albert C. Neimeth, Associate Dean for Placement and
Alumni Affairs
John Lee Smith, Dean of Students
Jane L. Hammond, Law Librarian
Robert L. Oakley, Associate Law Librarian
Anne Lukingbeal, Assistant Dean for Admissions

Law School

The primary function of the Law School is to prepare attorneys for both public and private practice who are equipped to render skillful professional service and who are thoroughly conscious of the important role played by the law as a means of social control. The curriculum is designed to prepare students for admission to the bar in all American states and territories.

Ordinarily a student who is admitted to the Law School must have a baccalaureate degree from an approved college or university. The course of study leading to the degree of Doctor of Law (J.D.) covers three academic years. A limited number of students will be admitted to a program of study leading to the degree of Doctor of Law (J.D.) "with specialization in international affairs."

There are combined graduate degree programs with the Graduate School of Business and Public Administration, the Department of City and Regional Planning, and the School of Industrial and Labor Relations, as well as a special opportunity for highly qualified undergraduates in the College of Arts and Sciences to register in the Law School during their senior year.

Division of Nutritional Sciences

The Division of Nutritional Sciences is an intercollege unit administered jointly by the College of Human Ecology and the College of Agriculture and Life Sciences. The division coordinates and unifies undergraduate teaching, graduate training, research, and extension activities related to nutritional sciences. Students are admitted to the undergraduate major through the College of Human Ecology. Students in the College of Agriculture and Life Sciences may develop a nutritional science concentration in consultation with an appropriate adviser through the General Studies Program and must meet the requirements established by the division. Courses in the division may be used to meet graduation requirements in both the College of Human Ecology and the College of Agriculture and Life Sciences.

Nutritional sciences constitutes a broad area of study that draws upon diverse disciplines to develop an understanding of the interrelationships among food, nutrition, and health. Division programs focus on the generation of new knowledge through research and the use of knowledge to alleviate human problems. Major areas of study involve: (1) nutrition: the physiological and biochemical dimensions of nutrition in relation to health; (2) food science: the quality, acceptability, and use of food by human beings; and (3) applied nutrition: the application of knowledge of nutrition, dietetics, and food science to the nutritional well-being of individuals from all age groups and socioeconomic levels.

The division offers programs leading to the bachelor's, master's, and doctoral degrees. Graduate study in nutritional sciences is administered by the graduate Field of Nutrition.

The Major

The core of the undergraduate major includes preparation in appropriate areas of the physical and biological sciences and courses in human nutrition and food. The emphases of the undergraduate major are consumer food science, consumer food and nutrition, community nutrition, clinical nutrition, and nutritional biochemistry.

Students wishing an additional specialization in dietetics must meet the requirements of the American Dietetic Association, which are similar to but not identical with the requirements of the major.

While physical and biological sciences form the basis for the study of human nutrition and food, it is equally important to apply this knowledge in meeting the needs of people. Thus students take courses in the social and behavioral sciences relating to particular career interests.

The program prepares students for a variety of first-level positions in the profession, a dietetic internship, or advanced study in nutrition, food science, medicine, or a biological science field.

Questions pertaining to undergraduate programs in the Division of Nutritional Sciences can be addressed to Marjorie Devine, Associate Director for Academic Affairs.

Emphases

All majors take a common core of course work in the natural and social sciences, communications and the humanities, and nutritional sciences. In addition to meeting core requirements, each student elects one area of emphasis.

Consumer Food Science provides students with background in basic and applied sciences to aid in the understanding of how treatment and composition of food affect food quality, safety, acceptability, and nutritive value. Students completing this emphasis may pursue graduate programs in food science or accept entry-level jobs in government or industrial laboratories in food analysis, quality control, or product development.

Consumer Food and Nutrition is intended to prepare students to apply the nutritional and food sciences to consumer concerns related to food quality, safety, cost, and nutritive value. Students add course work in communications, economics and government, and public policy or marketing to the nutritional sciences core. Upon graduation students may enter jobs in the government or private sector related to food and nutrition education, communications, consumer services, or public policy. Students may also pursue advanced studies in food science, nutrition, education, communications, or business.

Community Nutrition provides a strong background in basic and nutritional sciences with supporting courses in the social sciences. It is designed to aid students in understanding the ways in which knowledge of nutrition is or can be applied to the nutritional problems of various communities and groups in the population. Practical experience through supervised field study is strongly recommended. Students may continue study in graduate school or accept entry-level positions in community nutrition or nutrition education.

Clinical Nutrition builds on the basic science core to give a solid foundation in theoretical and applied aspects of human nutrition. Designed for students interested in

pursuing advanced study and careers in human nutrition and medicine, this area of emphasis stresses course and laboratory work in the natural and biological sciences and in the biological aspects of human nutrition.

Nutritional Biochemistry is intended to provide a basic science-oriented curriculum for students interested in pursuing advanced professional study in the nutritional and biomedical sciences. Course and laboratory work in chemistry, biochemistry, and physiology is stressed to help students develop an understanding of nutrient action at the subcellular level.

Requirements

The requirements outlined above for a major in nutritional sciences represent the minimum course work for each emphasis. Students should discuss with a faculty adviser what additional course work should be taken for their specific career interests.

All entering nutritional science majors take the Cornell mathematics placement test during orientation week. Based on these test results, students are advised whether further work in mathematics is required.

Some choice is possible among the required basic sciences. All students who have adequate preparation in high school mathematics and chemistry are encouraged to take Chemistry 207–208. For graduate study, many schools require a year each of college mathematics, biology, physics, and organic chemistry. Students interested in preparing for medical school should consult the Health Careers Program Office for recommendations about the courses they should take.

Dietetics requirements can be met in any nutritional sciences emphasis. To specialize in dietetics, students must complete courses that fulfill the requirements of the American Dietetic Association (ADA) plus requirements of one area of specialization: General Dietetics, Management, Clinical Dietetics, or Community Nutrition. Central screening must be completed by all students seeking membership and/or registration in the ADA. Students must initiate this process in the first semester of the senior year (by March for students graduating in January and by October for students graduating in May). Students should consult the Undergraduate Advising Office, 335 Martha Van Rensselaer Hall, for more complete information.

Academic Advising

When a student indicates a preference for the nutritional sciences major, the student is assigned a faculty adviser by the division's advising coordinator. Regular consultation with a faculty adviser is strongly recommended. Starting with the fall 1979 term, students must obtain their faculty adviser's signature on course registration forms and on forms used to add, drop, or change their course registration.

If a student does not have an adviser, the student should contact the Undergraduate Office, 335 Martha Van Rensselaer Hall. To change advisers, students need to fill out a change of adviser form. These forms can be obtained from and returned to the Undergraduate Office.

Special Experiences

Opportunities are available to work with faculty members on laboratory research, in field research, or with community action programs. Independent study courses (Nutritional

Sciences 400, 401, and 402) may be used for more diverse experience than can be provided in the classroom. Field experience in community nutrition is available through Nutritional Sciences 402. Interested students should consult their faculty advisers; approval by the adviser and the Division's Associate Director for Academic Affairs is required before a student can register for independent study.

Supervised field study is sometimes available in the summer as well as during the academic year. Practical experience often may be obtained by part-time student employment in some aspects of the program of instruction, research, or the extension and public service activities at the University. Information about part-time jobs can be obtained from the Placement Office, from the Division Office for Undergraduate Education, and sometimes from individual faculty members.

Students specifically interested in field experience in community nutrition should contact Mary Ann Suozzo, Field Study Coordinator, or Shiriki Kumanyika during course enrollment. Students may earn 2 or more credits for such experience.

The Honors Program

The honors program is designed to challenge the academically talented undergraduate student whose major is in the Division of Nutritional Sciences. The principle function of the honors program is to give official recognition to students who during their undergraduate years have demonstrated excellence both in their academic work and in their capacity for independent and original study.

The requirements for graduation with honors include the completion of two 1-credit courses, Nutritional Sciences 398 and Nutritional Sciences 498. These courses develop the student's ability to evaluate research findings and to design an independent research project. The student must also complete an original and innovative piece of research. The research problem may be in areas of policy and program development or in empirical research. Students will be granted credit appropriate for the work they carry out independently on the research problem. Honors courses may be counted toward the additional nutritional sciences courses required by the major.

During the spring semester each year, sophomore students majoring in the Division of Nutritional Sciences are considered for entry into the honors program by the honors committee. Criteria used for selection include scholastic achievement in the sciences and in the student's professional courses, the cumulative grade point average, and the student's motivation for independent study. Other students, including students transferring to the major at the junior level, will be considered for admission on written request. The deadline for entry into the program is the beginning of the second semester of the junior year.

If, after admission to the honors program, a student fails to maintain a high scholastic average, or if for any other reasons the division faculty considers the student unsuited for honors work, he or she reverts to candidacy for the regular bachelor's degree. Students will receive credit for any work passed in the program. For more information, contact Mary Morrison, the honors representative.

Learning Resources Center

For the convenience of individuals or groups of students, the Learning Resources Center has space and equipment for use of audiotapes, slides, filmstrips, and videotapes. Titles of both general and technical resources range from food faddism, weight control, nutritional biochemistry to analytical methods. Students find these materials useful to supplement classwork, for special projects, and for independent study. In cooperation with a faculty member, students may develop audiovisual presentations on a selected topic as an alternate learning experience.

The center, 339 Martha Van Rensselaer Hall, is open to all University students on weekdays.

Courses Recommended for Nonmajors

Courses in the division are open to all students of the University. For nonmajors, nutritional science courses strengthen preparation for careers in the biological sciences, medicine, agriculture, food science, those related to human services such as education and social service. Introductory courses in nutrition (Nutritional Sciences 115) and food (Nutritional Sciences 146) are open to nonmajors, as are the special interest courses (such as Nutritional Sciences 222 or 325). Students with college courses in the biological sciences, chemistry, and nutritional sciences may elect advanced courses (such as Nutritional Sciences 331, 246, or 446). Graduate students in other fields who want basic work in nutrition should consult a division faculty member for advice.

Graduate Program

The breadth and depth of faculty interests make it possible for students with a wide variety of interests to be accommodated. Graduate students pursuing the M.S. or Ph.D. degree may concentrate in human nutrition, general nutrition, animal nutrition, international nutrition, or food and nutritional biochemistry. A Master of Nutritional Science (M.N.S.) degree is offered in clinical nutrition. This program involves both academic and clinical training. Research and teaching assistantships and fellowships are available to qualified graduate students. Students who want detailed information about graduate programs in the division should write to the Graduate Faculty Representative, Cornell University, Division of Nutritional Sciences, Martha Van Rensselaer Hall, Ithaca, New York 14853.

Officer Education

Faculty and Staff

Department of Military Science

Lieutenant Colonel Gerald J. Hone, Air Defense Artillery, United States Army, Professor of Military Science and Commanding Officer, Army ROTC Unit

Major Richard L. Slinkard, Adjutant General Corps, United States Army

Captain Warren D. Wilson, Infantry, United States Army

Captain Donald Cranz, Armor, United States Army

Department of Naval Science

Captain Donald J. Meyer, United States Navy, Professor of Naval Science and Commanding Officer, Naval ROTC Unit

Commander Joseph M. Quigley, United States Navy

Major James M. Canario, United States Marine Corps

Lieutenant Robert E. Dolan, United States Navy

Lieutenant Barton S. Finegan, United States Navy

Lieutenant Curtis J. Hawks, United States Navy

Lieutenant Robert P. Perry, United States Navy

Lieutenant Clifford A. Nancarrow, United States Navy

Department of Aerospace Studies

Lieutenant Colonel Crosby A. Houston, United States Air Force, Professor of Aerospace Studies and Commander of the Air Force ROTC Detachment 520

Major Ronald F. Kozma, United States Air Force

Captain Andrew J. Ferencak, United States Air Force

Captain Gary R. Fisher, United States Air Force

Officer Education at Cornell

Military instruction began at Cornell University under the provisions of the Morrill Act of 1862 in 1868. Since that time, officer education has been highlighted by the construction of Barton Hall in 1914, establishment of a formal Reserve Officers Training Corps Unit (ROTC) in 1916, and the evolution of a program that de-emphasizes drill and formations and places greater stress on the development of leadership and managerial skills. Throughout the years, Cornell's program of officer education has provided many outstanding civilian and military leaders, well equipped for success as a result of knowledge and skills gained from their involvement in ROTC while pursuing undergraduate and graduate degrees.

The programs of officer education allow the student to prepare for a commission as an officer in either the reserves or regular military services of the United States. The Army, Navy, Marines, and Air Force offer such opportunities, and each service program is headed by a senior military officer who also serves as a full professor on the Cornell faculty.

United States Army ROTC Program

The primary objective of the Army ROTC (AROTC) program at Cornell is to develop and commission as junior officers, men and women who have the qualifications and potential for service as officers in the reserve and active components of the United States Army. Opportunities are also available

to those men and women desiring a career in the military. Intermediate objectives are to provide AROTC students with an understanding of the fundamentals of responsibility, integrity, and self-discipline, as well as an appreciation of the citizen's role in national defense. The application of the decision-making process to a variety of situations is given major emphasis as a valuable aid in developing leadership potential.

These objectives are achieved through a program normally covering four years. However, a two-year program is available. The program includes specific courses in military science, more general academic subjects that assure a well-rounded education, practical training in leadership through participation in the Cadet Corps (including attendance at a six-week summer camp at an Army installation), and the opportunity to participate in a number of extracurricular activities. The combination prepares the student for commissioning and effective performance in any of the several branches of service of the Army. The student's academic major, academic performance, leadership ability, personal desires, and the needs of the Army determine the branch of the Army in which he or she is commissioned upon graduation.

Requirements for Enrolling

Applicants must be citizens of the United States. (Noncitizens may enroll and will receive certificates acknowledging completion of the course, but do not receive commissions.)

An applicant's vision must be correctable to a minimum of 20/20 in one eye and 20/400 in the other eye. Height must be at least 60 inches for men, 58 inches for women, and no more than 80 inches for men and 72 inches for women, although exceptions will be considered. The weight requirement varies according to height and sex. Overall sound mental and physical condition is essential and students are required to undergo periodic physical examinations.

Enrollment in the four-year and two-year programs is generally subject to the approval of the professor of military science. Enrollment approval for specific courses for students not formally enrolled in the program will be left with course instructors. For more detailed information about the programs offered by the Department of Military Science, see the *Announcement of Officer Education*.

United States Naval ROTC Program

The objective of the Naval ROTC program is to prepare selected students for service as commissioned officers in the United States Navy or United States Marine Corps by supplementing their undergraduate education with instruction in essential concepts of naval science and fostering development in the qualities of leadership, integrity, and dedication to their country and the naval service. The NROTC program is compatible with most undergraduate major fields of study, including five-year baccalaureate degree programs.

The objective is achieved through a broad program, normally covering four years, which combines specific courses in naval science and specified academic subjects with weekly laboratory sessions in which the practical aspects of naval science and leadership procedures are stressed. The program also includes at least one summer-at-sea period.

Non-NROTC Students

Though the Navy program has been designed to prepare future officers, Navy courses are open to all students at Cornell University as space limitations allow.

Requirements for Enrollment

An applicant for Naval ROTC at Cornell must be a citizen of the United States. Applicants must have reached their seventeenth birthday by June 30 of the entering year and be less than twenty-five years of age on June 30 of the calendar year in which commissioned. Waivers of the upper age limit may be granted on an individual basis by the Chief of Naval Personnel up to age twenty-seven and one-half on June 30 of the year in which commissioned. Applicants must also meet physical and medical requirements. Interested students should visit the Naval ROTC unit in Barton Hall. For more detailed information about the programs offered by the Department of Naval Science, see the *Announcement of Officer Education*.

United States Air Force ROTC Program

The objective of the AFROTC program at Cornell is to prepare highly trained men and women for positions as officers in the United States Air Force. The program is designed to provide the student with a background of aerospace knowledge and to further develop qualities of leadership, integrity, and self-discipline.

The objectives are achieved through four-year and two-year programs. These programs include specific courses in aerospace studies and practical laboratories.

Entering students are assigned to one of four categories: flying (pilot-navigator), missile, engineering-science, and general service. These assignments are based on the students' preferences, qualifications, academic field of study, and the needs of the Air Force.

Requirements for an Air Force Commission

Enrollment The Air Force ROTC program is open to any undergraduate or graduate student enrolled in any major field of study. The student's academic course of study is often a prime factor in determining the kind of career that may be pursued in the Air Force. Applicants must be citizens of the United States. (Noncitizens may enroll and will receive certificates acknowledging completion of the course, but do not receive commissions.)

Though the Air Force program has been designed to prepare future officers, Air Force courses are open to all students at Cornell University as space limitations allow.

Course Requirements Each student in the program should complete their school or college's requirements for the bachelor's degree and also complete the courses listed below.

<i>Freshman Year</i>	<i>Credits</i>	<i>Term</i>
United States Air Force Today I and II	1+1	Fall and spring
Laboratory in Initial Military Experiences I and II	0	Fall and spring
<i>Sophomore Year</i>		
Development of Air Power I and II	1+1	Fall and spring
Laboratory in Initial Military Experiences III and IV	0	Fall and spring
Summer Field Training*		Summer

Junior Year

Management and Leadership I and II	3+3	Fall and spring
Laboratory in Advanced Leader- ship Experiences I and II	0	Fall and spring

Senior Year

American Defense Policy I and II	3+3	Fall and spring
Laboratory in Advanced Leader- ship Experiences III and IV	0	Fall and spring
Principles of Air Navigation and Aircraft Systems†	3	Fall

*Field training is a four-week encampment during the summer at a selected Air Force installation. Students may attend a six-week field training program in lieu of taking the freshman and sophomore courses.

†Required only for students who desire to be Air Force pilots.

Physical All applicants receive physical examinations at no cost and, to be accepted, must meet specific physical requirements. Overall sound physical and mental condition is essential.

Fees A uniform deposit of \$30 is required. An activities fee is charged at the beginning of each semester. The cost of the activities planned determines the fee; in 1978-79, the fee was \$15.

For more detailed information about the program offered by the Department of Aerospace Studies, see the *Announcement of Officer Education*.

Physical Education

Although courses are listed under Men's Physical Education and Women's Physical Education both men and women may register for any course in either department (with the exception of the swimming course offered by Men's Physical Education). Enrollment is limited by the number of places in each class and the locker space available; other restrictions are included in the course descriptions.

Women's Physical Education

Registration

Registration for courses in Women's Physical Education is not part of course or University registration. Students register at Teagle Hall gym on the dates listed on the calendar below, unless the course description states otherwise. The hours of registration are given below under "Men's Physical Education."

Instruction in physical education starts the third week of the academic semester. Courses offered "fall" or "spring" begin the third week of the semester and continue through the last week of academic instruction. Courses offered "fall I," "fall II," "spring I" or "spring II" are given in six-week units. The calendar below shows when they are offered.

Calendar

Fall

Registration	August 30 and 31
Fall I classes begin	September 17
Fall II classes begin	October 31
Fall classes end	December 11

Spring

Registration	January 17 and 18
Spring I classes begin	February 4
Spring II classes begin	March 24
Spring classes end	May 2

Men's Physical Education

Registration

Registration for courses in Men's Physical Education is not part of course or University registration. Students register in the Teagle Hall gym on the dates listed on the calendar below, unless the course description states otherwise. Teagle Hall is open for registration from 9 a.m. to 4 p.m. except during the lunch hour, usually from 12 noon to 1 p.m.

Instruction in physical education starts the third week of the academic semester and continues through the last week of classes.

Calendar

Fall

Registration	August 30 and 31
Late registration	September 3-5
Classes begin	September 17
Classes end	December 11

Spring

Registration	January 17 and 18
Late registration	January 21-23
Classes begin	February 4
Classes end	May 2

Division of Unclassified Students

The Division of Unclassified Students is designed to assist those students who are or have been enrolled in one undergraduate division at Cornell and wish to transfer to another program within the University but who may not make a direct internal transfer. Students whose best interests may be served by transferring to another institution but who need credits in specific areas or an opportunity to achieve better grades in courses not offered by the unit of the University they are presently enrolled in may also be considered. Admission is for one term. A second term may be granted on petition if satisfactory progress is being made toward transfer. The division office is in 375 Olin Hall, telephone 256-4386.

New York State College of Veterinary Medicine

Administration

Edward C. Melby, Jr., Dean
 Charles G. Rickard, Associate Dean for Academic Programs
 Lennart P. Krook, Associate Dean for Postdoctoral Education
 Neil L. Norcross, Secretary of the College
 Clyde I. Boyer, Jr., Director of Laboratory Animal Medicine and Service
 Robert B. Brown, Director of Student Administration and Admissions
 Ann Marcham, Director of Personnel and Assistant to the Dean
 Robert K. Radziwon, Assistant to the Dean
 Edward J. Trethaway, Assistant to the Dean for Public Affairs
 Walter J. Kochanek, Jr., Director of Fiscal Affairs
 Howard Moraff, Director of Computer Resources

The College

The College of Veterinary Medicine offers a professional program which requires four years of full-time academic and clinical study of the normal and abnormal structure and function of the animal body and the diagnosis, treatment, and prevention of animal disease.

Graduates of the college receive the Doctor of Veterinary Medicine (D.V.M.) degree, which is recognized by licensing boards throughout the world. Graduates generally enter private practice or become engaged in one of the increasing number of other biomedical activities.

Admission requires a minimum of three years of college work, including specific prerequisite courses and experience. In exceptional cases, outstanding students who have completed all of the prerequisites in two years of undergraduate education may be considered for admission. Applications must be filed approximately one year before the proposed matriculation date. The competition for admission is keen since there are many more qualified applicants than can be admitted.

Graduate programs in veterinary research and postdoctoral training in clinical specialties are open to Doctors of Veterinary Medicine and some highly qualified holders of baccalaureate degrees, and lead to the degree of Master of Science, Doctor of Science in Veterinary Medicine, or Doctor of Philosophy.

More detailed information is contained in the *Announcement of the College of Veterinary Medicine*, which may be obtained by writing to the college.

University Roster

The following roster lists faculty who constitute the voting membership* of the University faculty. The list is in alphabetical order by college and includes the highest degree, the institution granting such degree, the title, and the department or area of specialization of each faculty member. Professors-at-large are listed separately at the end.

The cutoff date used to compile this information was May 1, 1979.

Africana Studies and Research Center

- Cross, William E., Ph.D., Princeton U. Asst. Prof., Africana Studies and Research Center
 Harris, Robert L., Ph.D., Northwestern U. Asst. Prof., Africana Studies and Research Center
 Mbatia, J. Congress, U.E.D., U. of South Africa. Assoc. Prof., Africana Studies and Research Center
 Turner, James E., Ph.D., Union Grad. Sch. at Antioch Coll. Assoc. Prof., Africana Studies and Research Center

New York State College of Agriculture and Life Sciences

- Abawi, George S., Ph.D., Cornell U. Assoc. Prof., Plant Pathology (Geneva)
 Acree, Terry E., Ph.D., Cornell U. Assoc. Prof., Food Science and Technology (Geneva)
 Adleman, Marvin I., M.L.A., Harvard U. Assoc. Prof., Floriculture and Ornamental Horticulture
 Ainslie, Harry R., Ph.D., Kansas State U. Prof., Animal Science
 Aist, James R., Ph.D., U. of Wisconsin. Assoc. Prof., Plant Pathology
 Albright, Louis D., Ph.D., Cornell U. Assoc. Prof., Agricultural Engineering
 Aldwinckle, H. S., Ph.D., U. of London. Assoc. Prof., Plant Pathology (Geneva)
 Alexander, Martin, Ph.D., U. of Wisconsin. Liberty Hyde Bailey Professor of Soil Science, Agronomy
 Allee, David J., Ph.D., Cornell U. Prof., Agricultural Economics
 Anderson, Bruce L., Ph.D., U. of California at Berkeley, Asst. Prof., Agricultural Economics
 Anderson, Ronald E., Ph.D., U. of Wisconsin. Assoc. Prof., Plant Breeding and Biometry
 Andrus, Howard G., Ph.D., Cornell U. Prof., Education

- Apgar, Barbara J., Ph.D., Cornell U. Asst. Prof., Animal Science
 Aplin, Richard D., Ph.D., Cornell U. Prof., Agricultural Economics
 Arneson, Phil A., Ph.D., U. of Wisconsin. Assoc. Prof., Plant Pathology
 Arnold, Richard W., Ph.D., Iowa State U. Prof., Agronomy
 Austic, Richard E., Ph.D., U. of California at Davis. Assoc. Prof., Poultry Science
 Awa, Njoku E., Ph.D., Cornell U. Assoc. Prof., Communication Arts
 Baer, Richard A., Ph.D., Harvard U. Assoc. Prof., Natural Resources
 Bail, Joe P., Ph.D., Michigan State U. Prof., Education
 Baker, Robert C., Ph.D., Purdue U. Prof., Poultry Science
 Bandler, David K., M.P.S., Cornell U. Assoc. Prof., Food Science
 Barker, Randolph, Ph.D., Iowa State U. Prof., Agricultural Economics
 Barkley, Paul W., Ph.D., Kansas State U. Prof., Agricultural Economics
 Barnett, Milton L., Ph.D., Cornell U. Prof., Rural Sociology
 Barton, Donald W., Ph.D., U. of California at Berkeley. Prof., Seed and Vegetable Sciences (Geneva)
 Bartsch, James A., Ph.D., Purdue U. Asst. Prof., Agricultural Engineering
 Barwind, Jack A., Ph.D., Bowling Green U. Assoc. Prof., Communication Arts
 Bateman, Durward F., Ph.D., Cornell U. Prof., Plant Pathology
 Bauder, Ward W., Ph.D., Cornell U. Prof., Rural Sociology
 Bauman, Dale E., Ph.D., U. of Illinois. Assoc. Prof., Animal Science
 Beer, Steven V., Ph.D., U. of California at Davis. Assoc. Prof., Plant Pathology
 Beermann, Donald H., Ph.D., U. of Wisconsin. Asst. Prof., Animal Science
 Berkey, Arthur L., Ph.D., Michigan State U. Assoc. Prof., Education
 Bills, Nelson L., Ph.D., Washington State U. Assoc. Prof., Agricultural Economics
 Bing, Arthur, Ph.D., Cornell U. Prof., Floriculture and Ornamental Horticulture
 Black, Richard D., Ph.D., U. of Illinois. Assoc. Prof., Agricultural Engineering
 Blandford, David, Ph.D., Manchester U. Asst. Prof., Agricultural Economics
 Blanpied, G. D., Ph.D., Michigan State U. Prof., Pomology
 Bloom, Stephen E., Ph.D., Penn State U. Assoc. Prof., Poultry Science
 Boisvert, Richard N., Ph.D., U. of Minnesota. Assoc. Prof., Agricultural Economics
 Boodley, James W., Ph.D., Penn State U. Prof., Floriculture and Ornamental Horticulture
 Boothroyd, Carl W., Ph.D., Cornell U. Prof., Plant Pathology
 Bouldin, David R., Ph.D., Iowa State U. Prof., Agronomy
 Bourke, John B., Ph.D., Oregon State U. Prof., Food Science and Technology (Geneva)
 Bourne, Malcolm C., Ph.D., U. of California at Davis. Prof., Food Science and Technology (Geneva)

*"The voting members of the University Faculty shall consist of the President, who shall be the presiding officer, emeritus professors, University professors, professors-at-large in residence, and all professors, associate professors and assistant professors of the several colleges, schools and separate academic departments, divisions, and centers at Ithaca and Geneva, including those with courtesy appointments as authorized by these Bylaws."

- Bowers, William S., Ph.D., Purdue U. Prof., Entomology (Geneva)
- Brannon, Warren F., Ph.D., Cornell U. Assoc. Prof., Animal Science
- Broadwell, George J., Ph.D., Cornell U. Assoc. Prof., Cooperative Extension
- Brodie, Bill B., Ph.D., North Carolina State U. Prof., Plant Pathology
- Brown, Earl H., Ph.D., Michigan State U. Prof., Agricultural Economics
- Brown, William L., Jr., Ph.D., Harvard U. Prof., Entomology
- Bruce, Robert L., Ph.D., Cornell U. Prof., Education
- Brumsted, Harlan B., Ph.D., Cornell U. Assoc. Prof., Natural Resources
- Brunk, Max E., Ph.D., Cornell U. Prof., Agricultural Economics
- Bugliari, Joseph B., L.L.B., Cornell U. Prof., Agricultural Economics
- Burr, Thomas J., Ph.D., U. of California at Berkeley. Asst. Prof., Plant Pathology (Geneva)
- Butler, Walter R., Ph.D., Purdue U. Asst. Prof., Animal Science
- Buttel, Frederick H., Ph.D., U. of Wisconsin. Asst. Prof., Rural Sociology
- Cady, Foster B., Ph.D., North Carolina State U. Prof., Plant Breeding and Biometry
- Call, David L., Ph.D., Cornell U. Prof., Agricultural Economics
- Campbell, Joseph K., M.S., Cornell U. Assoc. Prof., Agricultural Engineering
- Capener, Harold R., Ph.D., Cornell U. Prof., Rural Sociology
- Casler, George L., Ph.D., Purdue U. Prof., Agricultural Economics
- Cetas, Robert C., Ph.D., Cornell U. Prof., Plant Pathology
- Chaleff, Roy S., Ph.D., Yale U. Asst. Prof., Plant Breeding and Biometry
- Chapman, Lewis D., Ph.D., U. of California at Berkeley. Assoc. Prof., Agricultural Economics
- Chase, Larry E., Ph.D., Penn State U. Asst. Prof., Animal Science
- Clark, Benjamin E., Ph.D., Michigan State U. Prof., Seed and Vegetable Sciences (Geneva)
- Colle, Royal D., Ph.D., Cornell U. Prof., Communication Arts
- Combs, Gerald F., Jr., Ph.D., Cornell U. Asst. Prof., Poultry Science
- Compton, James L., Ph.D., U. of Michigan. Assoc. Prof., Education
- Conklin, Howard E., Ph.D., Cornell U. Prof., Agricultural Economics
- Conneman, George J., Ph.D., Penn State U. Prof., Agricultural Economics
- Conrad, Jon M., Ph.D., U. of Wisconsin. Asst. Prof., Agricultural Economics
- Cooke, J. Robert, Ph.D., North Carolina State U. Prof., Agricultural Engineering
- Coward, E. Walter, Ph.D., Iowa State U. Assoc. Prof., Rural Sociology
- Crawford, Robert H., Ph.D., Syracuse U. Assoc. Prof., Communication Arts
- Creasy, Leroy L., Ph.D., U. of California at Davis. Prof., Pomology
- Crowder, Loy V., Ph.D., Cornell U. Prof., Plant Breeding and Biometry
- Cummings, Gordon J., Ph.D., Cornell U. Prof., Rural Sociology
- Cummins, James N., Ph.D., Southern Illinois U. Assoc. Prof., Pomology and Viticulture (Geneva)
- Cunningham, Danis, Ph.D., Virginia Polytechnic Inst. Asst. Prof., Poultry Science
- Cupp, Eddie W., Ph.D., U. of Illinois. Assoc. Prof., Entomology
- Currie, W. Bruce, Ph.D., Macquarie U. Asst. Prof., Animal Science
- Curtis, Otis F., Jr., Ph.D., Cornell U. Assoc. Prof., Pomology and Viticulture (Geneva)
- Cushman, Harold R., Ph.D., Cornell U. Prof., Education
- Davis, Alexander C., Ph.D., Cornell U. Prof., Entomology (Geneva)
- Day, Lee M., Ph.D., U. of Minnesota. Prof., Agricultural Economics
- Delwiche, E. A., Ph.D., Cornell U. Prof., Microbiology
- Dethier, Bernard E., Ph.D., Johns Hopkins U. Prof., Agronomy
- Dewey, James E., Ph.D., Cornell U. Prof., Entomology
- Dickey, Robert S., Ph.D., U. of California at Berkeley. Prof., Plant Pathology
- Dickson, Michael H., Ph.D., Michigan State U. Prof., Seed and Vegetable Sciences (Geneva)
- Dietert, Rodney R., Ph.D., U. of Texas at Austin. Asst. Prof., Poultry Science
- Dolan, Desmond D., Ph.D., Cornell U. Assoc. Prof., Seed and Vegetable Sciences (Geneva)
- Dondero, Norman C., Ph.D., Cornell U. Prof., Microbiology
- Downes, Theron W., Ph.D., Rutgers U. Asst. Prof., Food Science
- Downing, Donald L., Ph.D., U. of Georgia. Assoc. Prof., Food Science and Technology (Geneva)
- Drake, William E., Ph.D., Michigan State U. Prof., Education
- Duke, William B., Ph.D., U. of Illinois. Assoc. Prof., Agronomy
- Dunn, James A., Ph.D., U. of Michigan. Prof., Education
- Duxbury, John M., Ph.D., U. of Birmingham. Assoc. Prof., Agronomy
- Eberts, Paul R., Ph.D., U. of Michigan. Assoc. Prof., Rural Sociology
- Eckenrode, Charles J., Jr., Ph.D., U. of Wisconsin. Assoc. Prof., Entomology (Geneva)
- Egner, Joan R., Ed.D., Cornell U. Prof., Education
- Eickwort, George C., Ph.D., U. of Kansas. Prof., Entomology
- Elfvig, Donald C., Ph.D., U. of California at Riverside. Assoc. Prof., Pomology
- Ellerbrock, LeRoy A., Ph.D., Cornell U. Asst. Prof., Vegetable Crops
- Elliot, John M., Ph.D., Cornell U. Prof., Animal Science
- Erickson, Eugene C., Ph.D., Michigan State U. Prof., Rural Sociology
- Everett, Herbert L., Ph.D., Yale U. Prof., Plant Breeding and Biometry

- Everett, Robert W., Ph.D., Michigan State U. Assoc. Prof., Animal Science
- Everhart, W. Harry, Ph.D., Cornell U. Prof., Natural Resources
- Ewing, Elmer E., Ph.D., Cornell U. Prof., Vegetable Crops
- Federer, Walter T., Ph.D., Iowa State U. Liberty Hyde Bailey Professor of Biological Statistics, Plant Breeding and Biometry
- Fick, Gary W., Ph.D., U. of California at Davis. Assoc. Prof., Agronomy
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 Wu, Ray J., Ph.D., U. of Pennsylvania. Prof., Biochemistry, Molecular and Cell Biology‡

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 Kennedy, Kenneth A. R. Assoc. Prof., Anthropology/Asian Studies/Ecology and Systematics
 Provine, William B. Assoc. Prof., History/Biological Sciences
 Risch, Stephen J. Asst. Prof., STS/Ecology and Systematics

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- Gasteiger, Edgar L., Ph.D., U. of Minnesota. Prof., Physiology/Physical Biology
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 Tapper, Daniel N., Ph.D., Cornell U. Prof., Physiology/Neurobiology and Behavior/Physical Biology
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Joint Appointees

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 Gillespie, James H. Prof., Microbiology/Biological Sciences
 Houpt, Katherine A. Asst. Prof., Physiology, Biochemistry, and Pharmacology/Physiology
 Houpt, T. Richard. Prof., Physiology, Biochemistry, and Pharmacology/Physiology
 Whitlock, John H. Prof., Pathology/Biological Sciences

College of Engineering

Joint Appointee

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Division of Nutritional Sciences

Joint Appointees

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- Ahlers, David M., Ph.D., Carnegie-Mellon U. Assoc. Prof., Management
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Agriculture and Life Sciences	59	175
Architecture, Art, and Planning	15	31
Arts and Sciences	165.5	483
Business and Public Administration	12	15
Centers and Programs	13	—
Engineering	14.5	189
Hotel Administration	19	23
Human Ecology	9	54
Industrial and Labor Relations	7	55
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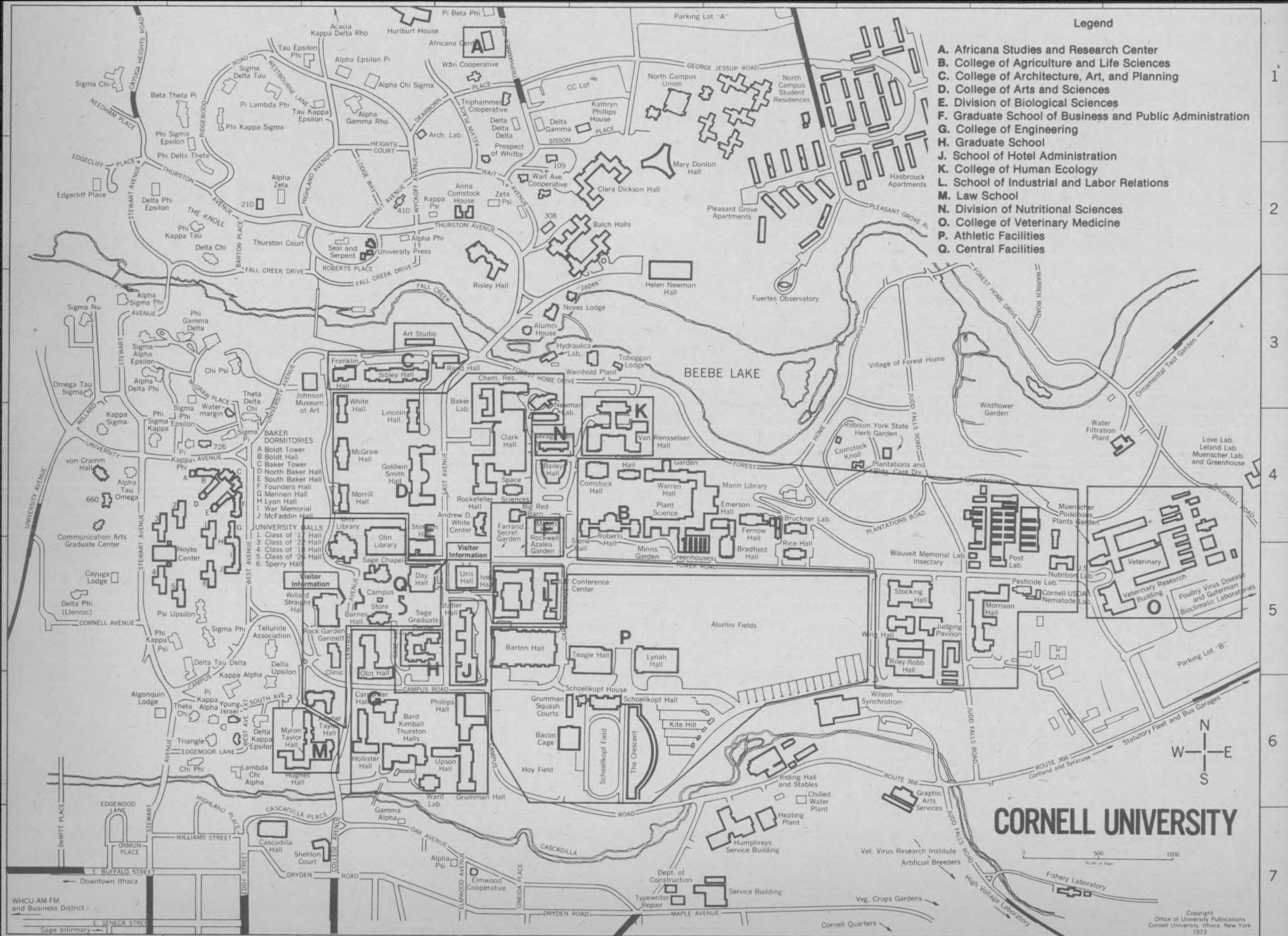
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- H. Graduate School
- J. School of Hotel Administration
- K. College of Human Ecology
- L. School of Industrial and Labor Relations
- M. Law School
- N. Division of Nutritional Sciences
- O. College of Veterinary Medicine
- P. Athletic Facilities
- Q. Central Facilities



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